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FIFTH ANNUAL REPORT

OF THE

SECRETARY

OF THE

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C. L. FLINT,
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Massachusetts Agricultural College.

630-155
1857 report.

Donor Agriculture of Massachusetts
1857

No.

WITH AN APPENDIX,

CONTAINING AN ABSTRACT OF THE

FINANCES OF THE COUNTY SOCIETIES.

BOSTON:
WILLIAM WHITE, PRINTER TO THE STATE.
1858.

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M38
1857

STATE BOARD OF AGRICULTURE.

1858.

MEMBERS EX OFFICIIS.

His Excellency NATHANIEL P. BANKS.
His Honor ELIPHALET TRASK.
Hon. OLIVER WARNER, *Secretary of State.*

APPOINTED BY THE GOVERNOR AND COUNCIL.

JAMES S. GRENNELL, *of Greenfield.*
EPHRAIM W. BULL, *of Concord.*
MARSHALL P. WILDER, *of Dorchester.*

MEMBERS CHOSEN BY THE SOCIETIES.

Massachusetts,	RICHARD S. FAY, *of Boston.*
Essex,	MOSES NEWELL, *of West Newbury.*
Middlesex,	SIMON BROWN, *of Concord.*
Middlesex, South,	WILLIAM G. LEWIS, *of Framingham.*
Middlesex, North,	JOHN C. BARTLETT, *of Chelmsford.*
Worcester,	JOHN BROOKS, *of Princeton.*
Worcester, West,	JOSIAH WHITE, *of Petersham.*
Worcester, North,	JABEZ FISHER, *of Fitchburg.*
Worcester, South,	OLIVER C. FELTON, *of Brookfield.*
Hampshire, Franklin and Hampden,	PAOLI LATHROP, *of South Hadley.*
Hampshire,	LUKE SWEETSER, *of Amherst.*
Hampden,	GEORGE M. ATWATER, *of Springfield.*
Hampden, East,	CYRUS KNOX, *of Palmer.*
Franklin,	THOMAS J. FIELD, *of Northfield.*
Berkshire,	CHARLES K. TRACY, *of Hinsdale.*
Housatonic,	SAMUEL H. BUSHNELL, *of Sheffield.*
Norfolk,	BENJAMIN V. FRENCH, *of Dorchester.*
Bristol,	NATHAN DURFEE, *of Fall River.*
Plymouth,	CHARLES G. DAVIS, *of Plymouth.*
Barnstable,	GEORGE MARSTON, *of Barnstable.*
Nantucket,	EDWARD W. GARDNER, *of Nantucket.*

CHARLES L. FLINT, *Secretary.*

FIFTH ANNUAL REPORT

OF THE

SECRETARY

OF THE

BOARD OF AGRICULTURE.

To the Senate and House of Representatives of the Commonwealth of Massachusetts:—

In the Annual Reports which I have had the honor to submit to the legislature since entering upon the duties of my office as Secretary of the Board of Agriculture, it has been my practice, after giving a statement of the proceedings of the Board during the year, to devote a considerable space to the investigation and discussion of some special subject connected with agriculture. To collect materials of immediate and permanent value, it was necessary that extensive inquiries of practical farmers should be made the basis of the greatest possible amount of condensed information, and this involved not only an almost incredible extent of correspondence and travelling during a considerable part of each year, but also a vast amount of labor and time in condensing and arranging the materials thus collected. But I was persuaded that much good might be done in this way, and that I could not more advantageously employ the time not occupied by the pressure of other duties. During the past year, however, principally on account of the State exhibition held under the direction of the Board, my labors have been so much increased that I have been unable to find time to work out the requisite materials for such an essay, and to arrange them in proper form. In my present Report, I shall, therefore, confine myself to a statement of the doings of the Board, and an account of the State Exhibition and its results, adding from time to time, such remarks and suggestions as seem to arise naturally from the subjects spoken of.

Before entering upon a detailed report of the exhibition, however, I desire to express my deep conviction of the usefulness of such exhibitions in general.

The history of agriculture shows that various methods have been adopted in different ages to advance its interests and develop its resources, all indicating a conviction on the minds of leading men in civilized life, that this is the basis of all the other arts and occupations. Sometimes allotments of land have been made upon certain conditions, or generous bounties have been offered with a view of exciting an active competition, and thus leading to improvement. The same end has been sought by treatises designed to extend a knowledge of the principles and practice of the art, and in more recent times by the publication of journals, the institution of exhibitions of improved stock, farm implements and farm products, and the establishment of agricultural schools.

Without doubt, all these methods have been productive of incalculable benefits by increasing the productiveness of the soil, thus adding to the comforts and the luxuries of life, and aiding the progress of civilization.

But probably the most efficient means of promoting the development of agriculture, is the bringing together of the best specimens of improved stock, products and implements for the examination of all who feel an interest in the subject, or in other words, the agricultural exhibition.

It has been found by experience that the most valuable part of our practical knowledge, is that gained by intercourse with our fellow men, and especially those engaged in the same pursuits and having the same objects as ourselves. By means of such intercourse, we have associated, instead of individual effort, the co-operation of many minds, and not merely the teachings of one.

But this is not all. The benefit which may be derived from reading, is greater, when the mind is quickened and stimulated by contact with others. The reader feels more interest in theories or facts presented to his notice, and examines them more attentively, if he has heard them discussed by his neighbors and friends, or is himself in the habit of joining in such discussions. Hence he will understand them better and be better able to apply them to his own practice.

It is so with all arts. The degree of improvement attainable by individual effort or skill, is very low when compared with that which may be reached by the united labor of many. In general, the worker himself—even if he be the greatest inventor or mechanical genius the world ever knew—can do more if he have an associate. But after his work is finished—when a knowledge of the product of his skill is to be spread abroad that its benefits may be enjoyed by the greatest number possible—then it is especially, that we see the good effects of all that tends to make intercourse between man and man more frequent.

In this State, the importance of agricultural exhibitions was first appreciated by the members of the Massachusetts Society for the Promotion of Agriculture, and the first State exhibition was held in Brighton on the second Tuesday of October, 1816, for the purpose of encouraging improvements in stock. The following year encouragement was also extended to agricultural experiments, mechanical inventions and domestic manufactures, and these objects have ever since keen kept in view by the county societies, some of which, as the Berkshire and the Middlesex, had held exhibitions in their respective localities before the State exhibition at Brighton.

Eminent authority existed, even at that time, for the course adopted by the Massachusetts and other societies. Almost all the European governments had made it a part of their established policy to encourage the development of agriculture, many of them seeking to produce the desired effect by direct grants in the shape of loans or premiums for specific improvements, and others by the incorporation of agricultural societies. The British government, for instance, appropriated about twenty-five thousand dollars to the board of agriculture, when it was established in 1794, besides making a liberal annual grant from the treasury, and the beneficial results of these measures are too apparent to admit of dispute. The well known opinion and expressed desire of Washington might also have been cited as some reason for activity in this direction.

It seems to me that there can be no doubt that the early exhibitions of the state and county societies of Massachusetts contributed largely to the improvements in our practical farming now everywhere apparent, and did much to awaken the spirit of inquiry and investigation, now so prevalent among the farming community, and their continuance will do more than any other one thing can, to secure the advancement of agriculture among us.

The Massachusetts Society continued its exhibitions till they were found to interfere with those of the county societies, which were established in quick succession all over the State, and were then abandoned, and the funds of the society devoted to the importation and breeding of stock, till the different breeds were pretty generally distributed over the Commonwealth.

Meantime, all the neighboring States had fallen into the practice of holding State fairs, which were known to be beneficial in promoting the progress of agriculture in their respective sections, and it was thought by a few individuals in the western part of the State, that Massachusetts would derive an equal amount of benefit from pursuing a similar course. A meeting of citizens was accordingly called at the State House on the 5th of February, 1857, for the purpose of deliberation upon the expediency of establishing a new State Agricultural Society, and the official report of the meeting appeared in the Boston Journal, as follows:—

The meeting was called to order by Mr. Marston, of Barnstable, and on motion, Col. J. H. W. Page, of this city, was called on to preside, and was introduced to his seat by Hon. Marshall P. Wilder. Hon. Benjamin F. Mills, of Williamstown, was appointed Secretary.

The chairman in a few words, introduced the subject of the meeting generally, and called on gentlemen to offer their views on the establishment of an association of the description mentioned above.

Mr. Comstock, of Springfield, at whose suggestion the meeting was called, offered the following resolution:—

Resolved, That a committee to consist of one member from each county here represented, be appointed by the Chair, to consider and report on the propriety of organizing a State Agricultural Society, and, if deemed proper by them, to report a plan of organization for such society.

Mr. Proctor, of Danvers, thought that before the resolution passed, it would be necessary to consider whether such an association was expedient. There was already a State association, which was productive of much good, and one which would only require a hint to do whatever was proper for the interests of agriculture, without there being occasion to establish a new society. For his part, Mr. Proctor was of opinion that there was no requirement for the projected organization, so long as there was one which was capable of doing all that would be really necessary.

Hon. Marshall P. Wilder expressed his gratification in doing whatever was demanded, and within his power, at all times for the benefit of agriculture. He was especially gratified to see that the western portion of the State had arisen in advocacy of that good work. He did not wish to offer any motion, but would simply suggest that the proposed committee should consist of members of each agricultural society here represented, when the expediency of the project would be considered in connection with the interests of the county societies, which was an important matter of consideration. The mover of the resolution given above accepted the suggestion, and it was incorporated in the resolution.

Hon. Simon Brown thought that the whole matter could be better considered in committee of the whole, and he moved that the resolution be laid on the table, and the expediency of the establishment of a new society discussed. The meeting assented.

The discussion of the general subject was then taken up, Mr. Proctor desiring in the first place to hear what reasons subsisted for the establishment of the proposed society. Perhaps, he said, on hearing them, he might have occasion to change his mind as to the utility of its organization.

Mr. Lewis, of Framingham, said he was a member of the old chrysalis society, and of the Board of Agriculture. He found great ignorance among the people concerning the State Agricultural Society; many knew nothing about it. It had a respectable existence, he believed, in State Street, and was likely to be a money-making concern. The State paid it $600 per annum, and some said it was spent in good dinners; and he was glad that the western people came here and demanded to know what was really done with the money. The result of this meeting would probably be to bring out the State society to the doing of some good, as it ought to do; and it would not be a bad thing that the incorporation of some Young American blood should speedily take place among the old-fogy, aristocratic, but respectable members of the society.

Mr. Marston, of Barnstable, was of opinion that no overpowering demand existed for a new society. The smallness of this meeting was evidence that this idea was a correct one. If the old society was ineffectual for good, but would do good on the suggestions of parties who were anxious on the subject, if pushed on to action, there was no more needed. The natural effect of this meeting would be, in his mind, to urge the members of the old society to a more decided action. The formation of the proposed society would interfere with the relations of the district agricultural societies and the Board of Agriculture. As things now stood, the machinery worked well, and in complete harmony, and it would be very injudicious to disturb its present movements.

Mr. Wilder paid a high compliment to the value and efficiency of the old society, and commended the advantages its members had procured for the Massachusetts farmers. The consequences of their publications had been beneficial to a wonderful degree. They had imported many valuable cattle, and were ready to do it again. They were men of the strictest integrity, and the funds under their care were, doubtless, properly spent. There was a complaint that it was difficult to get access to the society, but this was not precisely the case. Members from all quarters could be admitted, but there was a rule, he believed, which required that something should be known of the parties admitted. Mr. Wilder read an extract from a letter from a gentleman of eminence, which deprecated any interference with the existing State society, as it would be the cause of much injury to the agriculture of the State. He made the statements (embodied above) in justice to the parties to whom they alluded, and gave the extract from the letter, without at the same time suggesting any action of this meeting.

Mr. Lewis, of Framingham, said that all that was required was that the old society should be awakened to a consciousness of their existence and functions, and that there should be an infusion of more active blood into it. If it was in any shape possible to bring about these things, there was no more required, and if this meeting was the means of causing any rattling among the dry bones, it would do about all it had a design to do.

Hon. B. V. French spoke in laudatory terms of the past efforts of the State Association, and enumerated many recent actions in the way of agricultural improvement, which were equally public spirited and judicious. He specified the appropriation, last year, of $1,000 for the best mowing machine, among other acts of the society. The tales about feastings and drinkings of wine which were paid out of the public funds, were fabulous. He admitted that the complaints were getting loud, that the society was becoming a little too conservative; but they were, as he heard, willing to go more ahead in future. As a good beginning, they had taken out of their own pockets,

$1,000, and made it as a gift to the late exhibition here under the auspices of the National Agricultural Society. The society was not very rich, but had carefully husbanded its means, and Mr. French had little hesitation in believing that the members would not require much urging to use their earnest and best efforts for the progress and improvement of agriculture. Something indeed should be done, for the west was fast running ahead of us, and this should not be allowed.

Mr. Wilder stated that the $1,000 in question came from the funds of the Massachusetts Society, as he had been informed by the secretary.

Mr. Phillips, of Fitchburg, enumerated the means which now existed in the shape of agricultural societies in the Commonwealth for the improvement of agriculture, and thought that they were sufficient in themselves to serve the legitimate purposes of improvement without the aid of a new society. They would be peculiarly so if, as was stated, the Massachusetts Society was willing to engage in a more active course of proceeding. He was of opinion that the project under discussion was not required. He therefore moved the following resolutions:—

Resolved, That the establishment of another State agricultural society would tend to alienate those kind and patriotic feelings which have so uniformly characterized the past and present trustees of our ancient and honorable State society: and whereas it is understood that the present State society would contribute of its funds for exhibitions, under the supervision of the State Board of Agriculture; therefore—

Resolved, That, in the opinion of this assembly, it is desirable that the State Board of Agriculture should hold agricultural fairs whenever funds are placed at its disposal, either by the Commonwealth or by the munificence of others.

Resolved, That we recommend the State Board of Agriculture, composed as it is of representatives from, and acting in harmony with, all the incorporated societies in the Commonwealth, to take immediately into consideration the expediency of holding agricultural exhibitions, and to make known at an early day the result of their deliberations.

Inquiry was made whether there was a State agricultural society, and sundry parties replied that such a society did exist.

Mr. Copeland, of Lexington, complained that nothing had yet been said in favor of establishing a new society. And no one had stated, in describing the advantages held out by the old society, that these advantages were such as the farmers in the State demanded.

He thought that, as compared with the associations of other countries, the labors of the agricultural societies were as nothing. They have never had, in the first place, a sufficient support from the State, and they were not able to penetrate below the crust of information which the farmer demanded. They never had encouraged the talent of such men as Liebig, Boussingault, or Johnston, or had a literature that was as respectable as it ought to be. The agricultural newspapers of this country, Mr. Copeland said, were much below the standard of those of other countries; and he would not be satisfied that the literary duties of our agricultural societies were properly done until they establish a quarterly journal of agriculture, as other countries had. Agricultural professorships in our colleges should also be established, and the farmer made to know that wearing a green jacket and blue overalls and driving a team, was not all that designated a farmer—but that he was a man of mind, and should impart it to his occupation. He moved that a committee of five be appointed to take into consideration whether any thing can be done to benefit the cause of agriculture in this Commonwealth in a permanent shape.

A lengthy conversational discussion took place on the powers and agricultural jurisdiction of the Massachusetts Society for the Promotion of Agriculture, the lassitude of which had been the cause of so much comment. The object of the conversation was to elicit the nature and extent of the connection it had with the local societies, and in how far the establishment of a new association would affect the connection and usefulness of the State and local organizations.

Dr. Loring, of Salem, said he had heard only two questions mooted since he came here, and these were, whether we had a State society? and whether we had a proper agricultural literature? He had no doubt that we had a State society, nor that they had not for some time past, but would be willing now to conform to public opinion in a greater measure than they have done. As to the character of the literature of our agricultural societies, he was at issue with the gentleman who had commented on it. The State reports were invaluable to the farmer, as Mr. Loring knew practically, and so were the agricultural papers, and he was unwilling to stand here and hear them demeaned in favor of papers and journals published over the water, whose theories were totally inapplicable to this State. High sounding theories and speculations were not what was wanted here. What was really desiderated, were the facts on which the common farmer built up his prosperity; and for this purpose, and for other useful purposes, the agricultural literature of Massachusetts was not inferior to any foreign literature —no matter what names or influences gave it endorsement. He read it himself, and was glad to have the opportunity, and thousands of the most intelligent of our farmers did the same. This was a sufficient defence for it. Mr. Loring recommended that the meeting take no steps to constitute a new society, but to labor to make the old society, with the State Board, useful as they could, and would be to every interest of the farmer.

Hon. Simon Brown made a brief speech, descriptive of the advantages which had proceeded from the institution of the Massachusetts Agricultural Society—showing that they were beyond estimate, and that it would be injudicious to take any step which would hinder its continued efficiency. He was opposed to any new society.

Mr. Loomis, of Springfield, said that the parties who had originated this question had had their motives misrepresented. The State society had been called ancient and honorable, but was it not so more for ornament than for use? The question was, was it up to the mark of usefulness? had it done all the good it could? It had done some good, surely, but not the amount that was sufficient for the requirements of the times. It was too contracted in its numbers; and if the old society would extend its numbers, and admit men into it who would make its usefulness practically beneficial, no more would be required. An association in which the aggregate opinions of the agriculture of the whole State could be represented, was exactly what was wanted; and in procuring this, he did not see in what respect the movement would vitiate the interest, or hinder the usefulness of the local societies. Besides, the State society, to be influentially operative, and do credit to the whole State, should not be narrowed in its numbers, and contracted in its views, as the Massachusetts Society had been.

Mr. Brooks, of Princeton, said that the Massachusetts Society had partially been driven out of the agricultural exhibition field by the county societies, and that may have originated, in part, what was characterized as closeness on their part. He had no doubt that when the members know that State shows were demanded, they would agree to the wish. For his part, he would guarantee $500 as his share in covering their loss—although such would hardly be possible. Mr. Brooks moved that the resolutions offered by Mr. Phillips, of Fitchburg, be adopted.

The resolutions were passed by an unanimous vote. That of Mr. Copeland was not put, as he did not offer it either as an amendment to Mr. Phillips' resolutions, or as an independent one—and as Mr. Copeland had left the hall when it came before the meeting.

Major Phinney, of Barnstable, with the view to satisfy some parties present, and to keep a way open for future safe action, should it be necessary, offered a resolution that a committee be appointed by the chair, of one from each county, to consider the propriety of establishing a new association, and report to a future meeting, or through the press, as they should think expedient.

Discussion took place on this resolution—some believing that sufficient had already been done. The mover was of opinion that much good would grow out of a meeting between the committee and the members of the Massachusetts Association for the Promotion of Agriculture. By conference, views could be elicited, and information procured that could not otherwise be had. He had no doubt the old society would be glad to hold such conference.

Mr. Loring moved to amend the motion so that the committee should submit their report to the State Board of Agriculture.

Mr. Wilder considered the resolution exactly counter to that passed. The State Board was recommended to hold a State exhibition whenever money was granted for that purpose, which was a compromise proposition; and it did not appear proper, to his mind, to restore a motion which the compromise had superseded.

Mr. Brooks insisted that as the western members of the meeting were tenacious of the passage of the resolution, it should not be withdrawn.

Mr. Loomis was of the belief, after consideration, that the proposition was of a dictatorial or threatening character, and he was therefore of opinion that it should not pass.

The resolution was put and passed; and the first of the resolutions previously passed having been read by request of Mr. Wilder, the conflict between it and the one just passed was very obvious.

Mr. Phinney proposed to withdraw the resolution; but a vote having passed on it, reconsideration and leave were first required.

Reconsideration took place, and leave being granted, the resolution was withdrawn.

The chairman made a few closing observations on the prosperity which had attended the agricultural societies in the State, after which, the meeting, on motion of Mr. Wilder, passed a vote of thanks to the chair, and adjourned.

A special meeting of the Board of Agriculture was called to consider the subject embodied in the second and third resolutions passed at the meeting, and it was—

Resolved, That in the opinion of this Board, it is expedient to hold a State Cattle Show and Agricultural Fair, at some time in the months of September or October next, and that a committee now be appointed to make arrangements for the same, with authority to fix on a time and place for holding the same, provided a sufficient guarantee fund is pledged to defray the expenses.

In accordance with the above resolution, Messrs. M. P. Wilder, Samuel Chandler, John Brooks, George Marston, William G. Lewis, Moses Newell, and Thomas J. Field, were constituted a committee of arrangements. It was subsequently

Voted, That the committee which has been appointed to arrange for the State Cattle Show and Agricultural Fair, have authority to elect a President, Treasurer and Secretary of the occasion, and to fill any vacancies that may occur on the committee.

At a meeting of the Committee of Arrangements held immediately after, the Hon. M. P. Wilder was elected President of the exhibition, William G. Lewis, Esq., Treasurer, and Charles L. Flint, Secretary.

The Trustees of the Massachusetts Society for the Promotion of Agriculture, with their characteristic liberality, very generously volunteered to contribute two thousand dollars towards defraying the expenses of the Fair. In addition to this, a guarantee fund of fifteen thousand dollars was immediately raised, with the understanding that the Fair should be held in Boston.

The special reason for the selection of this location, was that the beautiful grounds already fenced and belonging to the city, could be rented at a reasonable sum, and that this would be the last opportunity of locating here, as it was contemplated, at no distant period, to remove the fence and use the ground for other purposes. The fact of this being the first Fair under the auspices of the Board and consequently to be regarded somewhat in the light of an experiment, the pecuniary result of which would be at least doubtful, had its influence also, since it was thought desirable to locate as near the centre of population as possible, in order to insure success. These considerations commended themselves to the good judgment of men in all parts of the State.

The time of holding the Fair was unanimously fixed at the 20th, 21st, 22d and 23d of October, in order not to interfere with the county exhibitions, the times of all of which had already been fixed upon, and some of which fell on each of the six preceding weeks.

These preliminaries arranged, no pains were spared to make the preparations for the Fair as complete as possible. The schedule of premiums was extensively distributed, and ample and liberal encouragement offered for all classes of farm stock, farm products, farm implements, domestic manufactures, and the mechanic arts.

The weather during the Fair was very cold, so much so as to make the attendance of visitors in the highest degree uncomfortable; and this circumstance, united with the unexampled financial crisis under which the whole community was groaning, and which at that particular time was about at its height, had a very unfavorable effect. Exhibitors, however, appeared in great numbers, and with spirited emulation, and the judges being nearly all present, proceeded promptly with their examinations.

The first class in the published schedule of premiums included all neat stock arranged in ten divisions, the first of which was the

IMPROVED SHORT-HORNS.

The opinion has prevailed, especially in the eastern part of the State, that this splendid breed of animals was less adapted to our climate and short pastures than some of the smaller races. Whether this opinion be correct or not, it is certain that very few pure bred short-horns are to be found in this section. Many fine specimens are kept in the western part of the State, and the crosses there obtained with pure bred short-horn bulls and grade or "native" cows, would do credit to any breeding section in the world.

This famous breed was originally, as we have reason to believe, built up by careful selections of fine boned males and females of the best form and symmetry, especially in the county of Durham, along the valley of the Tees, in England, from which it is often called the Durham, and formerly the "Teeswater breed." There is a dispute among the most eminent breeders, as to how far it owes its origin to early importations from Holland, whence many superior animals were brought for the purpose of improving the old long-horned breed common in Yorkshire, Lincolnshire and Northumberland.

The cattle produced by these crosses were at one time known under the name of "Dutch." The cows selected for crossing with the early imported Dutch bulls, were generally long-horned, coarse animals, a fair type of which was found in the old "Holderness" breed of Yorkshire,—slow feeders, strong in the shoulder, defective in the fore-quarter, and not very profitable for the butcher. They are known to have been large boned, while their meat was said to have been "coarse to the palate, and uninviting to the eye." Whatever may be the truth with regard to these crosses, and however far they proved effective in creating, or laying the foundation of the modern improved short-horns, the results of the efforts made in Yorkshire and some of the adjoining counties, were never so satisfactory to the best judges as those of the breeders of Durham, who selected animals with greater reference to fineness of bone and symmetry of form, and the animals thus bred soon took the lead, and excited great emulation in improvement.

The famous bull "Hubback," bred by Mr. Turner, of Hurworth, and subsequently owned by Mr. Colling, laid the foundation of the celebrity of the short-horns, and it is the pride of short-horn breeders to trace back to him. He was calved in 1777, and his descendants,—Foljambe, Bolingbroke, Favorite, and Comet,—permanently fixed the characteristics of the breed. Comet was so highly esteemed among breeders, that he sold at one thousand guineas, or over five thousand dollars. Hubback is thought by some to have been a pure short-horn, and by others, a grade or mixture.

Many breeders had labored long previous to and contemporary with the brothers Charles and Robert Colling, especially on the old Teeswater short-horns, yet a large share of the credit of improving them, and establishing the reputation of the improved short-horns, is generally accorded to them. Certain it is, that the spirit and discrimination with which they selected and bred soon became known, and a general interest was awakened in the breed at the time of the sale of Charles Colling's herd, October 11, 1810. It was then Mr. Bates, of Kirkleavington, purchased the celebrated heifer Duchess I., whose family sold, in 1850, after his decease, at an average of one hundred and sixteen pounds five shillings per head, including young calves. The sale of Robert Colling's herd, in 1818, and that of Lord Spencer, in 1846, as well as that of the Kirkleavington herd in 1850, and especially that of the herd of Lord Ducie, two years later, are marked eras in the history of improved short-horns; and through these sales, and the universal enthusiasm awakened by them, the short-horns have become more widely spread over Great Britain, and more generally fashionable than any other breed. They have also been largely introduced into France by the government, for the improvement of the various French breeds by crossing, and into nearly every quarter of the civilized world.

Importations have been frequent and extensive into the United States, within the last few years, and this unrivalled breed is now pretty generally diffused over the country.

The high bred short-horn is easily prepared for a show, and as fat will cover faults, the temptation is often too great to be resisted, and hence it is common to see the finest animals rendered unfit for breeding purposes by over-feeding. The race is said to be susceptible of breeding for the production of milk, and great milkers have often been known among pure bred animals, but it is more common to find it bred mainly for the butcher, and kept accordingly. It is, however, a well known fact, that the dairies of London are stocked chiefly with short-horns, or high grades, which after being milked so long as profitable, feed equal or nearly so to pure bred short-horns.

It has been said by very high authority, that "the short-horns improve every breed they cross with."

The desirable characteristics of the short-horn bull may be summed up, according to the judgment of the best breeders, as follows: He should have a short but fine head, very broad across the eyes, tapering to the nose, with a nostril full and prominent; the nose itself should be of a rich flesh color; eyes bright and mild; ears somewhat large and thin; horns slightly curved and rather flat, well set on a long, broad, muscular neck; chest wide, deep and projecting; shoulders fine, oblique, well formed into the chine; fore legs short, with upper arm large and powerful; barrel round, deep, well ribbed home; hips wide and level; back straight from the withers to the setting on of the tail, but short from hip to chine; skin soft and velvety to the touch; moderately thick hair, plentiful, soft and mossy. The cow has the same points in the main, but her head is finer, longer and more tapering; neck thinner and lighter, and shoulders more narrow across the chine.

The astonishing precocity of the short-horns, their remarkable aptitude to fatten, the perfection of their forms, and the fineness of their bony structure, give them an advantage over most other races when the object of breeding is for the shambles. No animal of any other breed can so rapidly transform the stock of any section around him as the improved short-horn bull.

But it does not follow that the high bred short-horns are unexceptionable for beef. The very exaggeration,—so to speak,—of the qualities which make them so valuable for the improvement of other and less perfect races, may become a fault when wanted for the table. The very rapidity with which they increase in size, is thought by some to prevent their meat from ripening up sufficiently before being hurried off to the butcher. The disproportion of the fatty to the muscular flesh, found in this to a greater extent than in races coming slower to maturity, makes the meat of the thorough bred short-horn, in the estimation of some, both less agreeable to the taste and less profitable to the consumer, since the nitrogenous compounds, true sources of nutriment, are found in less quantity than in the meat of animals not so highly bred.

But the improved short-horn is justly unrivalled for symmetry of form and beauty. I have never seen a picture or an engraving of an animal which could compare in beauty with many specimens of this race, especially with the best bred in Kentucky and Ohio, where many excellent breeders, favored by a climate and pastures eminently adapted to bring the short-horn to perfection, have not only imported extensively from the best herds in England, but have themselves attained a degree of knowledge and skill equalled only by that of the most celebrated breeders in the native country of this improved race.

To all short-horn breeders, Coate's Herd-book is an indispensable guide. This is published in alternate years, and several thousand animals are recorded, whose pedigree is thus fixed beyond dispute. The number of good herds of short-horns now in Great Britain exceeds five hundred.

The short-horns exhibited at the State Fair were, many of them, of a very high order. The premiums offered for them in the schedule were as follows:—

Herd Premiums.—For best short-horned bull and four cows, or heifers of any age, belonging to any one person—$50; next best, Diploma.

Bulls.—Three years old and upwards—1st premium, $30; 2nd, $20; 3d, $15. Two years old and under three years—1st premium, $20; 2nd, $15; 3d, $10. One year old and under two years—1st premium, $15; 2nd, $10; 3d, $5.

Cows and Heifers.—Three years old and upwards—1st premium, $30; 2nd, $20; 3d, $15. Two years old and under three years—1st premium, $20; 2nd, $15; 3d, $10. One year old and under two years—1st premium, $15; 2nd, $10; 3d, $5. Calves, discretionary.

ENTRIES OF IMPROVED SHORT-HORNS.

No. 1. Bull "Napoleon," 3 years old, weight 1,600 lbs., owned by Joseph A. Kerman, Newburyport.

2. Bull "Romeo," 3 years old, weight 1,800 lbs., owned by J. A. Harwood, Littleton.

3. Bull, and four cows and heifers, owned by Paoli Lathrop, South Hadley. (For herd premium.)

4. Bull, 4 years old, (imported) owned by Thos. W. Pierce, Topsfield.

5. Bull, "The Count," 3 years old, owned by Wm. Robinson, Jr., Barre.

6. Bull, 20 months old, weight 1,247 lbs., owned by Samuel R. Burroughs, Warren.

7. Heifer, "Duchess 4th," 2 years old, owned by S. W. Buffum, Winchester, N. H.

8. Heifer, "Alida," 2 years old, owned by S. W. Buffum, Winchester, N. H.

9. Heifer, "Lucky," 2 years old, owned by S. W. Buffum, Winchester, N. H.

10. Cow, 3 years old, owned by Paoli Lathrop, South Hadley Falls.

11. Cow, 4 years old, owned by Paoli Lathrop, South Hadley Falls.

12. Cow, 3 years old, owned by Paoli Lathrop, South Hadley Falls.

13. Cow, 4 years old, owned by Paoli Lathrop, South Hadley Falls.

14. Heifer, 1 year old, owned by Paoli Lathrop, South Hadley Falls.

15. Bull, 4 years old, owned by Sylvester Phipps, Hopkinton.

16. Cow, "Flash," 3 years old, owned by W. G. Woods, Dedham.

17. Cow, "Flashy," 3 years old, owned by W. G. Woods, Dedham.

18. Bull, 3 years old, weighs 2,150 lbs., owned by E. Pease, Middlefield.

19. Bull, "Nonsuch," 4 years old, owned by David Moseley, Westfield.

20. Bull, 4 years old, owned by Howard Ford, West Roxbury.

21. Cow, 6 years old owned by Howard Ford, West Roxbury.

The judges on the above animals submitted the following

REPORT:

The judges on short-horn stock have made the following awards:—

The herd premium to Paoli Lathrop, of South Hadley Falls.

Bull three years old and upwards: First premium to E. Pease, of Middlefield. Second premium to William Robinson, Jr., of Barre. Third premium to J. A. Harwood, of Littleton.

Bulls one year old and under two: First premium to Samuel R. Burroughs, of Warren.

A discretionary premium is recommended to Paoli Lathrop, of South Hadley Falls, for his bull calf.

There being no competitors for the premiums on bulls two years old, and but one entry for the premiums on bulls one year old, should the funds at the command of the Board warrant it, they recommend a gratuity of ten dollars to David Moseley, of Westfield, for his bull.

Cows and heifers three years old and upwards: First, second and third premiums to Paoli Lathrop, of South Hadley Falls.

A pair of twin cows, belonging to W. G. Woods, of Dedham, were very beautiful animals, but as the committee are instructed to have regard to purity of blood as established and confirmed by pedigree, they are obliged to pass them with commendation only.

Heifers two years old and under three: First premium to Paoli Lathrop, of South Hadley Falls.

Heifers one year old and under two: First premium to Paoli Lathrop, of South Hadley Falls.

The committee recommend to S. W. Buffum, of Winchester, N. H., a gratuity of $30 for his three beautiful two year old heifers offered for exhibition.

Respectfully submitted for the committee,

JOSEPH KITTREDGE, *Chairman.*

The next division in the order of the premium list, comprised the

NORTH DEVONS.

This valuable race of cattle dates farther back than any well established breed among us. It goes generally under the simple name of Devons, but the cattle of the southern part of the county, from which the race derives its name, differ greatly from those of the northern, having a larger and coarser frame, and far less tendency to fatten.

The North Devons are remarkable for hardihood, symmetry and beauty, and are generally bred for work and for beef, rather than for the dairy. The head is fine and well set on, the horns short and generally curved; color almost always bright blood-red, but sometimes inclining to yellow; skin thin and orange-yellow; hair of medium length, soft and silky, making the animals remarkable as handlers; muzzle of the nose white; eyes full and mild; ears yellowish, or orange color inside, of moderate size; neck rather long, with little dewlap; shoulders oblique; legs small and straight, and feet in proportion; chest of good width; ribs round and expanded; loins of first rate quality, long, wide and fleshy; hips round, of medium width; rump level; tail full near the setting on, tapering to the tip; thighs of the bull and ox muscular and full, and high in the flank, though in the cow sometimes thought to be too light; the size medium, generally called small. The proportion of meat on the valuable parts is greater, and the offal less, than on most other breeds, while it is well settled that they consume less food in its production; but the carcase is generally flatter than that of the short-horn or Hereford. The Devons are popular with the Smithfield butchers, and their beef is well marbled or grained.

As working oxen, the Devons perhaps excel all other races in quickness, docility and beauty, and the ease with which they are matched. With a reasonable load, they are equal to horses as walkers on the road, and when they are no longer wanted for work they fatten easily and turn well.

As milkers they do not generally excel, perhaps they may be said not to equal the other breeds, and they have a reputation of being decidedly below the average; but this is probably owing to breeding, in particular families. In their native country the general average of a dairy is one pound of butter per day during the summer.

But though the Devons generally are not noted as milkers, yet I have had occasion to examine several animals bought from the celebrated Patterson herd, which would have been remarkable as milkers even among the very best milking stock; and I am convinced that the reputation they bear as small milkers is due to the great anxiety which has been often manifested to breed, as it were, to order, in point of symmetry and beauty of form, with a disregard to milking qualities.

The most extensive breeders of Devons in this State are William Buckminster, of Framingham, Harvey Dodge, of Sutton, and John Brooks, Jr., of Princeton.

The judicious remarks of the chairman of the committee on Devons,—himself one of the most distinguished breeders in the State,—in regard to the selection and breeding of stock for special purposes, as for beef, work or milk, whichever may be the object in any particular case, are worthy of consideration by every farmer who buys or breeds stock for his own purposes on the farm. It is difficult, probably impossible, to obtain any race of animals which will combine all these qualities in an eminent degree, though undoubtedly some may be found which excel the average of cattle in these respects.

For the breeders and buyers of North Devons, Davy's Devon Herd-book, republished in this country under the careful supervision of Sanford Howard, is an important guide, as the pedigrees of most thorough-bred Devons will there be found recorded.

The premiums offered for animals of this breed were the same as those for short-horns, *p.* 19.

The entries of Devons made at the State Fair were as follows:—

No. 1.—Bull, "Alexander," 5 years old, owned by Samuel Chandler, Lexington.
2.—Bull, "Reubens 2d," 3 years old, owned by H. M. Sessions, South Wilbraham.
3.—Bull, "Comet," 5 years old, owned by H. G. White, South Framingham.
4.—Cow, "Baltimore 3d," 10 years old, owned by Joseph Burnett, Southborough.
5.—Cow, "Jessie," 3 years old, owned by Joseph Burnett, Southborough.
6.—Bull, "Rob Roy," 2 years old, owned by Joseph Burnett, Southborough.
7.—Bull, "Wachusett," 3 years old, owned by John Brooks, Jr., Princeton.
8.—Bull, "Wachusett 2d," 1 year old, owned by John Brooks, Jr., Princeton.
9.—Cow, "Susan," 3 years old, owned by John Brooks, Jr., Princeton.
10.—Cow, "Donna," 6 years old, owned by John Brooks, Jr., Princeton.
11.—Cow, "Countess," 6 years old, owned by John Brooks, Jr., Princeton.
12.—Cow, "Alice," 2 years old, owned by John Brooks, Jr., Princeton.
13.—Two bulls, three cows and heifer, by John Brooks, Jr., Princeton. (For herd premium.)
14.—Bull, "Earl of Devonshire," 2 years old, owned by Harvey Dodge, Sutton.
15.—Cow, "Countess," 7 years old, owned by Harvey Dodge, Sutton.
16.—Cow, "Ellen," 5 years old, owned by Harvey Dodge, Sutton.
17.—Cow, "Silkie," 3 years old, owned by Harvey Dodge, Sutton.
18.—Cow, "Lady Patterson," 3 years old, owned by Harvey Dodge, Sutton.
19.—Cow, "Lady Blakeslee," 2 years old, owned by Harvey Dodge, Sutton.
20.—Calves, four in number, owned by Harvey Dodge, Sutton.
21.—Bull and four cows, owned by Harvey Dodge, Sutton. (For herd premium.)
22.—Bull, 1 year old, owned by William Buckminster, Framingham.
23.—Bull, 2 years old, owned by William Buckminster, Framingham.
24.—Cow, 7 years old, owned by William Buckminster, Framingham.
25.—Cow, 5 years old, owned by William Buckminster, Framingham.
26.—Heifer, 2 years old, owned by William Buckminster, Framingham.
27.—Heifer, 2 years old, owned by William Buckminster, Framingham.

No. 28.—Bull and four cows, owned by William Buckminster, Framingham. (For herd premium.)
29.—Bull, "May Boy," owned by Charles W. Cushing, South Hingham.
30.—Bull, "Roebuck 2d," 1 year old, owned by Harvey Dodge, Sutton.
31.—Steer, 2 years old, owned by Harvey Dodge, Sutton.
32.—Cow, "Lady Devon," owned by the State, and kept at the State farm at Westborough. (Entered for exhibition only.)
33.—Cow, 5 years old, owned by Josiah Gates, Lowell.

The judges on the foregoing entries submitted the following

REPORT:

The committee appointed to judge on Devon cattle, were all present at their examination. We found we had no small task before us, when we received the *Black-book* from our indefatigable Secretary, and there learned there were over thirty entries, including all classes, on which we were to judge. There were three entries of one bull and four cows, each for the herd premiums. One, by the venerable editor and farmer of Framingham, (William Buckminster;) one by the intelligent farmer of Sutton, (Harvey Dodge;) and one by a son of the honorable farmer of Princeton, (John Brooks, Jr.)

The rearing of cattle is one of the most important branches of farming. It should be the object with our farmers to raise such cattle as mature early, and return the greatest profits for the food consumed. If we desire a combination of qualities in the same animal, such as work, beef, milk and early maturity, select that breed which combines these qualities in the highest degree. If only one object is desired, such as milk, beef, or work, procure the breed best adapted to the purpose for which it is wanted. We should, in our selection of stock, be governed by location, soil and feed. By selecting the breed best adapted to our circumstances, and managed judiciously, we cannot fail of success. The cattle which were under our examination were many of them superior, and some two or three in some of the classes were of merits so nearly equal, the committee found it difficult to decide. We had written statements in regard to the dairy products of Mr. Buckminster's and Mr. Brooks' herds. Mr. Dodge furnished a written statement of the purity of blood of his herd.

Mr. Buckminster's statement was confirmed by written certificates of two of his neighbors, (Abby Freeman and Caroline Winter,) that four quarts of the milk of his cows made in October, one pound of "good yellow butter."

By the statement of Mr. Brooks, it took eight quarts of the milk from his cows to make one pound of butter.

On the above statement of Mr. Buckminster, accompanied with perfect pedigrees, with the general appearance of the animals, and taking into account fineness and uniformity, the committee were unanimous in awarding him the first premium, $50. To Harvey Dodge, of Sutton, the second, diploma.

Mr. Brooks' herd were, some of them, animals of the first quality, but as a whole, not so uniform as either of the other herds. We would gladly have awarded him a gratuity, and also several other competitors in other classes, but the rules in our black-book prohibited it. This we attributed to curtailing of discounts of the banks, and their suspension of specie payments.

The other premiums we award as follows, viz.:—

Bulls, three years old and over—First, to H. M. Sessions, of South Wilbraham, $30; second, John Brooks, Jr., of Princeton, $20; third, Samuel Chandler, of Lexington, $15.

Two years old and under three—First, to William Buckminster, of Framingham, $20; second, to Harvey Dodge, of Sutton, $15; third not awarded.

One year and under two years—First, John Brooks, Jr., of Princeton, $15; second, William Buckminster, of Framingham, $10; third, Harvey Dodge, of Sutton, $5.

Cows and Heifers, three years and upwards—First, John Brooks, Jr., of Princeton, $30; second, William Buckminster, of Framingham, $20; third, Harvey Dodge, of Sutton, $15.

Two years and under three—First, John Brooks, Jr., of Princeton, $20; second, Wm. Buckminster, of Framingham, $15; third, also $10.

Discretionary—John Brooks, Jr., for a bull calf, $5; Harvey Dodge, for four calves, $5.

The animals from the State farm entered for exhibition only, were very superior. They show signs of having been well cared for; not overfed nor kept too short. They possess valuable points, substance, and desirable qualities of flesh, with light bone and offal.

Mr. J. Burnett, of Southborough, showed some fine cows, and the committee would have awarded him a gratuity had they the power and means of so doing.

P. Lathrop, *Chairman.*

The next breed in the arrangement adopted in the schedule, is the

AYRSHIRE.

This race of cattle is justly celebrated throughout Great Britain and this country for its excellent milking qualities. It is quite distinct from the other Scotch and English races. In color, the pure Ayrshire is generally red and white, spotted, not mottled like many of the short-horns, but presenting a bright contrast of colors. It is sometimes, though rarely, nearly or quite all red, and sometimes black and white, but the favorite color is red and white brightly contrasted. The head is fine and clean, the face long, with a sprightly yet generally mild expression; the horns short, fine and slightly twisted upwards; the neck thin, body enlarging from fore to hind quarters; the back straight and narrow; broad across the loin; ribs rather flat; hind quarters rather thin; bone fine; tail long, fine and bushy at the end; hair generally thin and soft; udder light color and capacious, extending well forward under the belly; teats of the cow of medium size, generally set regularly and wide apart, milk veins prominent and well developed. The carcase of the pure bred Ayrshire is light, particularly the forequarters, which is considered, by good judges, as an index of good milking qualities. On the whole, the animal is good looking, but wants the symmetry and the aptitude to fatten which characterize the short-horn.

The climate of Ayr and the adjoining counties on the northwestern coast of Scotland is moist, and the soil claycy and well adapted to pasturage, but difficult to till, and the cattle naturally hardy and active, and capable of enduring severe winters, and easily regaining condition with the return of spring and good feed.

The origin of the Ayrshire race is not yet well settled, some contending that it was derived from the native stock, crossed with larger southern races, and others that it grew from the peculiarity of climate, location and soil, and especially from the circumstances of the farmers of Ayr and the counties of Renfrew, Lanark, Dumbarton and Stirling, in which the Ayrshire race is almost the only stock kept. The three first of these counties, including the whole region around Glasgow, comprises a fourth part of the whole population of Scotland, a large proportion of which is engaged in manufactures and commercial or mechanical pursuits, and furnishing a ready market for milk and butter, the supply of meat coming from more distant sections, where no local demand for the products of the dairy exists. This local demand for fresh dairy products has very naturally taxed the skill and judgment of the farmers and dairy men to the utmost, through a long course of years, and thus the remarkable milking qualities of the Ayrshires were developed to such a degree that they may be said to produce a larger quantity of rich milk in proportion to the food consumed, or the cost of production, than any other of the pure bred races. The owners of dairies in the county of Ayr and the neighborhood, were generally small tenants, who took charge of their stock themselves, saving and breeding from the offspring of good milkers, drying off and feeding such as were found to be unprofitable for milk, for the butcher; and thus the production of milk and butter has for many years been the leading object with the owners of this breed, and symmetry of form and perfection of points for any other object, have been wholly disregarded, or if regarded at all, only from this one point of view—the production of the greatest quantity of rich milk. The Ayrshire cow has been known to produce over ten imperial gallons of good milk a day.

A cowfeeder in Glasgow, selling fresh milk, has been known to realize two hundred and fifty dollars in seven months from one good cow, and it is stated on high authority, that a dollar a day for six months of the year is no uncommon income from good cows, under similar circumstances, and that seventy-five cents a day is below the average. But this implies high and judicious feeding, of course, and the average yield, on ordinary feed, would be somewhat less.

As already remarked, the Ayrshires in their native country are generally bred for the dairy, and no other object, and the cows have obtained a world-wide reputation for this quality. They are, however, very fair as working oxen, though they cannot be said to excel other breeds in this respect. The Ayrshire steer may be fed and turned at three years old, but for feeding purposes, the Ayrshires are greatly improved by a cross with the short-horns. . It is the opinion of good breeders that a high bred short-horn bull and an Ayrshire cow, will produce a calf which will come to maturity earlier, and attain greater weight and sell for more money than a pure bred Ayrshire. This cross, with feeding from the start, may be sold fat at two years old, the improvement being especially seen in the earlier maturity and the size.

The cross with the short-horn may perhaps be recommended on other grounds. The form becomes ordinarily more symmetrical, while there is little or no risk of lessening the milking qualities of the offspring. The experience of the best breeders in all countries has pretty well established the truth of a principle which experiment will only still farther confirm, that in the breeding of animals, it is the male which gives the external form, or the bony and muscular system of the young, while the female imparts the respiratory organs, the circulation of the blood, the mucus membranes, the organs of secretion, &c., and if this principle, now generally conceded by practical breeders, is true, it follows that the milking qualities come chiefly from the mother, and that the bull could, in no respect, alter the conditions which determine the transmission of these qualities, especially when they are as strongly marked as they are in the Ayrshire or the Jersey races. The best milkers I have ever known in the course of my own observations, were grade Ayrshires, larger in size than the pure bloods, but still sufficiently high grades to give certain signs of their origin. This cross would, therefore, seem to possess the advantage of combining to some extent the two qualities of milking and adaptation to beef, and this is no small recommendation to the stock of farmers situated as we are, who wish to milk for some years and then turn over to the butcher. But opinions differ on this point.

The Ayrshires have been imported into this country to considerable extent. The most extensive herds in this State, are those of George W. Lyman, of Waltham, and Luke Sweetser, of Amherst.

There has been no Ayrshire herd-book published, though some record of pedigrees seems to be as desirable for this race as for some of the others.

The premiums offered for this race in the schedule referred to, were the same as those for short-horns.

The list of entries of Ayrshires for the State Fair, were as follows:—

1.—Bull, "Prince Albert," owned by Leonard Hoar, Lincoln.

2.—Bull, "Wachusett," 5 years old, owned by John Brooks, Jr., Princeton.

3.—Cow, "Effie," 10 years old, owned by William G. Lewis, Framingham.
4.—Bull, "Young America," 3 years old, owned by A. S. Lewis, Framingham.
5.—Cow, "Fanny," 5 years old, owned by A. S. Lewis, Framingham.
6.—Bull, "Zack Taylor, 2d," 2 years old, owned by Moses Newell, West Newbury.
7.—Heifer, "Daisy," 2 years old, owned by Moses Newell, West Newbury.
8.—Heifer, "Pink," 2 years old, owned by J. Cochran, Salem.

The committee appointed to judge on Ayrshires, submitted the following

REPORT:

The committee were much disappointed in not seeing a much larger number of this noted and valuable race of cattle for exhibition, there being only offered for their inspection, four bulls, two cows, and two heifers, none of which, in their opinion, claimed any decided superiority in the family they belong to. This race of cattle, you are aware, has the credit of producing a large flow of milk, a fair average not being overrated at from forty to fifty pounds per day. The statements of the two cows offered, fell far below that quantity, and your committee could not, in justice to the Board, but withhold from them the liberal premiums offered.

The two heifers were considered entitled to our commendation, but your committee, by an unanimous vote, decided neither worthy of the premiums.

Of three of the four bulls offered, we had some difficulty in deciding upon their superior merits over each other, but on mature deliberation award to Leonard Hoar, of Lincoln, for his bull, (Prince Albert,) the first premium, $30; to John Brooks, Jr., of Princeton, bull, (Wachusett,) the second premium of $20; to A. S. Lewis, of Framingham, bull, (Young America,) the third premium of $10; all of which is respectfully submitted.

William Spencer, *for the Committee.*

Lowell, Oct. 31, 1857.

HEREFORDS.

The Hereford cattle derive their name from a county in the western part of England. Their general characteristics are a white face, sometimes mottled; white throat, the white generally extending back on the neck, and sometimes, though rarely, still farther along on the back. The color of the rest of the body is red, generally dark, but sometimes light. Eighty years ago the best Hereford cattle were mottled or roan all over; and some of the best herds, down to a comparatively recent period, were either all mottled, or had the mottled or speckled face. The expression of the face is mild and lively, the forehead large, the eyes bright and full of vivacity, the horns glossy, slender and spreading; the head small, though larger and not quite so clean as the Devons; the lower jaw fine, neck long and slender, chest deep; breast bone large, prominent and very muscular; the shoulder blade light, shoulder full and soft, brisket and loins large; hips well developed, and on a level with the chine; hind quarters long and well filled in; buttocks on a level with the back, neither falling off nor raised above the hind quarters; tail slender, well set on; hair fine and soft; body round and full; carcase deep and well formed, or cylindrical; bone small, thigh short and well made; legs short and straight, and slender below the knee; as handlers very excellent, especially mellow to the touch on the back, the shoulder and along the sides, the skin being soft, flexible, of medium thickness, rolling on the neck and the hips; hair bright, face almost bare, which is characteristic of pure bred Herefords.

Hereford oxen are excellent animals, less active but stronger than the Devons, and very free and docile. The demand for Herefords for beef prevents their being used for work in their native county, and the farmers there generally use horses instead of oxen.

In point of symmetry and beauty of form, the well-bred Herefords may be classed with the improved short-horns, though they arrive somewhat slower at maturity and never attain such weight. The remark is sometimes made by good judges of stock, that those who desire very much the general qualities of the Devons, and yet want larger size, will find them combined in the Herefords.

The Herefords are far less generally spread over England than the improved short-horns. They have never been bred for milk as many families of the short-horns have, and it is not very unusual to find pure bred cows incapable of supplying milk sufficient to nourish their calves. This system was pursued especially by

Mr. Price, a skilful Hereford breeder, who sacrificed every thing to form, disregarding milking properties, breeding often from near relations, and thus fixing the fault incident to his system more or less permanently in the descendants of his stock. The want of care and attention to the udder, soon after calving, especially if the cow be on luxuriant grass, often injures her milking properties exceedingly. The practice in the county has generally been to let the calves suckle from four to six months, and bull calves often run eight months with the cow.

But with the exception of the descendants of Mr. Price's stock, it has been said that the Herefords are, in general, better milkers than the pure bred short-horns; though, as already remarked, neither of these races have been bred with reference to milking qualities, and neither would be kept for that purpose.

Though not so remarkable for early maturity as the improved short-horns, yet the Herefords generally arrive at the Smithfield market well fatted, at two years old; and so highly is their beautifully marbled beef esteemed, that it is eagerly sought by the butchers at a small advance, pound for pound, over the short-horn. They weigh less than the short-horns, but yield a larger weight of tallow, which is one reason of the preference for them.

In an experiment carefully tried in 1828, for the purpose of arriving at the comparative economy of the short-horns and Herefords, the latter gained less by nearly one-fourth than the former, which had consumed far more food. The six animals, three of each breed, were sold after being fed, in Smithfield market, the Herefords bringing less by only about five dollars than the short-horns, while the cost of food consumed by the latter was far greater, and the original purchase greater than that of the former.

The short-horn produces more beef at the same age than the Hereford, but consumes more food in proportion. "In all the fairs of England," says Hillyard, "except those of Herefordshire and the adjoining counties, short-horn heifers are more sought after and sell at higher prices than the Hereford; but it is not so with fat cattle, for with the exception of Lincolnshire and some of the northern counties, they much prefer the Herefords. Then at Smithfield, where the quality of the beef passes its final judgment, the pound of Hereford beef pays better than the pound of short-horn beef. Short-horn beeves produce at the same age a greater weight, it is true, but they also consume more food. I can easily conceive why, in the magnificent pastures of Lincolnshire and some of the northern counties of England, they may prefer the short-horns, and that is, that they may keep a less number on a given quantity of land, and only the short-horn could, under these conditions, produce a greater weight of beef per acre; under all the varying conditions it is very difficult to decide which of the two races in England (the two best in the world) is the most profitable for stock raisers and for the community." There are, even in Lincolnshire, many good feeders who prefer the Herefords to the short-horns. One of these, when visited the past season, had thirty head of cattle feeding for the butcher, and only one short-horn. When asked the reason of this, he replied: "I am a farmer myself, and have to pay high rent, and I must feed the cattle that pay me best. Perhaps you think it would be more in fashion to cover my fields with short-horns; but I must look to the nett product, and I get much better with the Herefords. The short-horns are too full of fat and make too little tallow, and they consequently sell too low in the Smithfield market. Our Herefords are better and they sell better; not as well, however, as those black Welsh cattle you see down there; but those are too difficult to fatten, and if I sell them higher they cost me more also."

Exceedingly high prices have sometimes been paid for first quality Herefords for breeding purposes. As early as 1819 a bull was bought by Lord Talbot, at about $3,000, and Mr. Westcar, a large feeder of Herefords, sold several years ago, six Hereford oxen in the Smithfield market for six hundred guineas.

The Dowley herd, now owned by Mr. Goodell, of Brattleboro', Vt., the herd of Mr. Clark, of Boston, kept at Granby, and those of Mr. Sotham and Mr. Corning, of New York, are, perhaps, most widely known of any in this country.

The Herefords owned by the State and kept at the State farm, at Westborough, are from the Dowley importation. Cronkhill 3d was sired by Cronkhill, imported in 1852 from Lord Berwick's stock. His dam was "Milton," imported at the same time with Cronkhill. The heifer "Cora," also out of Milton by Cronkhill, is now two years old. She is a fine specimen of the breed, possessing remarkable beauty and symmetry of form.

The preceding remarks on the characteristics of this breed were written before the interesting and valuable report of the chairman of the committee came to hand.

For Hereford breeders, Eyton's Hereford Herd-book is an important guide.

The premiums offered for this race at the State Fair were the same as for the short-horns, as given on page 19.

The entries of Herefords were as follows:—

No. 1.—Cow, "Fanny," (imported) 9 years old, owned by O. C. Clark, Boston.
2.—Cow, "Fanny 2d," 4 years old, owned by O. C. Clark, Boston.
3.—Cow, "Miss Sotham," 3 years old, owned by O. C. Clark, Boston.
4.—Cow, "Miss Wheeler," 6 years old, owned by O. C. Clark, Boston.
5.—Bull, "Granby," 1 year old, owned by O. C. Clark, Boston.
6.—Steers, 3 years old, owned by Thos. J. Field, Northfield.
7.—Bull and four Cows, owned by O. C. Clark, Boston. (For herd premium).
8.—Bull, "Cronkhill 3d," one year old, owned by the State, and kept at the State Farm at Westborough. Entered for exhibition only.
9.—Cow, "Milton," (imported) 7 years old, owned by the State, and kept at the State Farm at Westborough. Entered for exhibition only.
10.—Heifer "Cora," two years old, owned by the State, and kept at the State Farm at Westborough. Entered for exhibition only.
11.—Heifer Calf, 8 months old, owned by the State, and kept at the State Farm at Westborough. Entered for exhibition only.

The committee on Hereford cattle for the show, submitted the following—

REPORT:

The Herefords belong to the class of middle horns, according to the arrangement of varieties of the ox adopted by zoologists. Like their congeners, the Devons, the West Highlanders, and the cattle of Wales, they are considered indigenous to Britain—that is, they were found in certain districts of that kingdom at the earliest period to which history or tradition reaches. The breed appears to have undergone some changes within the last century, which changes are chiefly the result of systematic selection and breeding in reference to particular purposes, and not the admixture of other blood. The first effort of this kind, of which we have an authentic account, was made by Benjamin Tomkins, of Wellington Court, Herefordshire, who, according to Professor Low, commenced about the year 1766, with two cows which evinced a singular disposition to fatten. Mr. Eyton, the compiler of the "Herd-book of Hereford Cattle," states that he was informed by the family of Mr. Tomkins, that one of these cows "was a gray, and the other a dark red with a spotted face." The former, Mr. T. called Pigeon, and the latter, Mottle. It appears that Mr. T. kept two branches from these two cows—one of a gray color, called the Pigeon branch, and the other of a red color, with white or mottled face, called the Mottle branch—and they have been continued to this day.

From the two cows mentioned, Mr. Tomkins bred a large herd, and supplied other breeders with many choice animals during his lifetime, and shortly after his death, in 1819, the entire stock was disposed of at public auction. The prices obtained deserve notice. Fifty-two animals, among which were twenty-two steers, from calves to two-year-olds and two heifer calves, brought the aggregate sum of £4,673 14*s.*, averaging £89 17*s.* 6*d.*, ($445.37½) each. One bull sold to Lord Talbot for £588, and several cows brought £215 to £273 each. The stock was purchased by breeders in different parts of the kingdom, and laid the foundation for many eminent herds. (See *Herd-book of Hereford Cattle*, vol. 1, appendix, pp. 1 to 23.)

The Herefords have not been largely introduced into this country. The first importation of the breed, of which there is a clear record, was made by the late Hon. Henry Clay, of Kentucky, in 1817. In a letter from Mr. C. in regard to them, published in the *American Farmer*, 1822, it is stated that there were two bulls and two heifers, the total cost of which, in England, was £105 sterling. It is not stated who was the breeder of the stock, but the comparatively low price paid would seem to indicate that they were not from a herd of the highest repute.

In 1824, Admiral Coffin, of the Royal Navy, presented to the Massachusetts Society for Promoting Agriculture, a Hereford bull and heifer. The documents accompanying them, stated that they were bred by Sir J. G. Cottrel, whose stock was from Mr. Yarworth, and his from Mr. Benjamin Tomkins, the first noted breeder of Herefords, before mentioned. The cow never bred. The bull was kept for some time by the late Hon. Isaac C. Bates, of Northampton, and died in that vicinity at the age of nineteen or twenty years, leaving a progeny highly esteemed for general usefulness.

The largest importation of the breed, was made by Messrs. Corning and Sotham, of Albany, in 1840, consisting of five bulls and seventeen cows and heifers. To this herd was added other imported animals in subsequent years. The stock has since been divided, and both Mr. Corning and Mr. Sotham have made later importations. Hon. L. A. Dowley, of Boston, in 1852, imported a bull and two heifers, which were placed on his farm, at Brattleborough, Vt. They were bred by Lord Berwick.

The predominant characteristic of the Herefords, is a tendency to fatten. In a paper by E. F. Wells, published in the London *Farmers' Magazine* for February, 1848, the following sensible remarks are made in regard to the properties of the Herefords:—"It is allowed on all hands, I believe, that the properties in which Herefords stand pre-eminent among the middle-sized breeds, are in the production of oxen and their superiority of flesh. On these points, there is little chance of their being excelled. It should, however, be borne in mind, that the best oxen are not produced from the largest cows, nor is a superior quality of flesh, such as is considered very soft to the touch, with thin skin. It is the union of these two qualities which often characterizes the short-horns; but the Hereford breeders should endeavor to maintain a higher standard of excellence—that for which the best of the breed have always been esteemed—a moderately thick, mellow hide, with a well apportioned combination of softness with elasticity. A sufficiency of hair is also desirable, and if accompanied with a disposition to curl moderately, it is more in esteem; but that which has a harsh and wiry feel, is objectionable." It is for beef, chiefly, that they, as well as the "improved short-horns," and the Devons are bred in England. They are more hardy than the short-horns, and their beef is of better quality, commanding a price in the English markets equal to any, except the Highland Scotch. As oxen, they are active, with weight and strength equal to the performance of any labor usually required. The breed ranks next to the short-horn in size. As to dairy qualities, they are as good as any cattle in which the fattening tendency is as highly developed. They give rich milk, and if it were desirable, the milking property might be developed to a greater degree, but as it would be at the sacrifice, more or less, of the fattening propensity, the breed would not probably be, on the whole, improved by this course. There is a place for the Herefords, as the breed is at present constituted, in this country, and so far as they have been fairly tried, they have given good satisfaction. Wherever beef and labor are the leading objects for which cattle are kept in New England, and the northern section of the country generally, the Herefords are worthy of a thorough trial, inasmuch as the experiments heretofore made with them, indicate their adaptedness to this purpose.

At the present show, only two lots of Herefords were exhibited, viz., those belonging to the State Farm, at Westborough—offered for exhibition only—and those belonging to O. C. Clark, of Boston. The former lot consisted of the cow Milton, a two-year-old heifer, a yearling bull, and a heifer calf, all the offspring of this cow by Mr. Dowley's imported bull, Cronkhill. Milton was also imported by Mr. Dowley, and together with the heifer mentioned, was purchased at Mr. D's public sale in 1855. She is a cow of good substance and fine symmetry, with the exception of a little deficiency in the flanks. The heifer is a superior animal—almost perfect in symmetry, and as a *grazier*, seldom equalled. The bull is large, of good constitution, and generally well made, but with hardly the fullness of eye, or the mellowness of skin that would be desirable. The heifer calf is very promising.

Mr. Clark's lot consisted of nine head. Most of them were derived from stock imported from England by William Chamberlain, of Red Hook, N. Y.; though one was purchased of Mr. Sotham, of Owego, N. Y. One yearling and several calves were got by Cronkhill.

The committee award Mr. Clark the following premiums:—

For the best bull and four cows or heifers, "the herd premium" of $50—the animals being the bull Granby, fourteen months old, by Cronkhill out of Fanny 2d,—the imported cow Fanny, nine years old,—Fanny 2d, four years old,—Miss Wheeler, six years old,—and Miss Sotham, three years old.

For the best bull, one year and under two years old, Granby, $15. This is a well shaped animal, of good quality and constitution, but rather small.

For the best cow, three years old and upwards, first premium, Miss Sotham, $30. This is a very fine cow—compact, symmetrical, hardy, and of firstrate handling quality. She had a fine bull calf by her side, by Cronkhill 3d, bred by Mr. Dowley.

For the second best cow, Fanny, $20. This cow was imported by Mr. Chamberlain. She has a large, good frame, and good constitution, with an excellent hide and coat, though shown in rather low condition. She had a beautiful heifer calf by her side, by Cronkhill.

These were all the regular premiums awarded under this head; but as the committee were authorized to bestow a "discretionary" premium for calves, they recommend that $10 be given to Mr. Clark for the three exhibited by him.

A pair of half-blood Hereford steers, by Cronkhill, were brought to the notice of the committee, by Thomas J. Field, of Northfield.

They were three years old, large and thrifty. As there were no premiums offered for this description of stock, the committee award a gratuity to Mr. Field, of $25.

Creampots.—The committee were requested by one of the officers of the Board, to examine some specimens of Col. Jaques's "Creampot" stock exhibited on this occasion. They were a cow, a yearling heifer, and a bull calf. These cattle have been bred by Col. J. for upwards of thirty years, from a cross made between the imported short-horn bull Cœlebes, and a (so-called) native cow. The cow here exhibited is large, rather heavy in bone, but of fair symmetry, with a yellow skin, rather too thin, but mellow. Her general appearance is indicative of good dairy properties, which Col. J. assures us she possesses, although he made no special statement in regard to her milk or butter. The heifer is of good size, and of good appearance, as a milker, as well as neat in form. The bull calf is from the cow just spoken of, and his sire was also from the same cow—thus making the calf in question three-fourths of the blood of his dam. He is large enough, has a neat head, good limbs, a mellow, but too thin skin, with fine, soft hair. His first ribs are too flat, and he is too thin through the chest, but in other respects his shape is not faulty. The color of all these animals is red, as is that of all Col. J. has bred of this family for many years. They have been bred from very close affinities, of which the calf here alluded to, is an instance.

The chairman of your committee had intended to have made a more particular report in regard to Col. Jaques's cattle, especially in reference to the system on which they have been bred, together with a statement of the results as developed by the animals from generation to generation; but circumstances have hitherto precluded the performance of that labor, and it is therefore for the present postponed.

Sanford Howard, of Boston,
Charles Pomeroy, of Northfield,
Elias Grout, of Ashland,
George M. Barrett, of Concord,
Elijah M. Reed, of Tewksbury,
Committee.

The next in order on the premium list were

THE JERSEYS.

The importation of Jersey cattle into this State has been more extensive within the last ten years than that of any other breed, and the show of Jerseys at the State Fair was probably the best ever made in this country.

Opinions differ widely as to the comparative merits of this race, and its adaptation to our climate and circumstances, and the wants of our farmers. The most common decision, prevailing among many, even of the best judges of stock, is, that however desirable they may be on the lawn or in a gentleman's park, they are wholly unsuited to the general wants of the practical farmer. This may or may not be the case. If the farmer keeps a dairy farm and sells only milk, the quantity of which, and not the quality, is his chief care, he can satisfy himself better with some other breed. If otherwise situated, if he devotes his time to the making of butter for the supply of customers who are willing to pay for a good article, he may very properly consider whether a few Jerseys or an infusion of Jersey blood may not be desirable.

The Jersey race is supposed to be derived originally from Normandy, in the northern part of France. The cows have been long celebrated for the production of very rich milk and cream, but till within a quarter of a century, they were comparatively coarse, ugly and ill-shaped. Improvements have been very marked, but the animal is still very far from satisfying the eye of a breeder. The head of the pure Jersey is fine and tapering, the cheek small, the throat clean, the muzzle fine and encircled with a light stripe, the nostril high and open ; the horns smooth, crumpled, not very thick at the base, tapering, and tipt with black ; ears small and thin, deep orange color inside ; eyes full and placid, neck straight and fine, chest broad and deep, barrel hooped, broad and deep, well ribbed up ; back straight from the withers to the hip, and from the top of the hip to the setting on of the tail ; tail fine, at right angles with the back, and hanging down to the hocks ; skin thin, light color and mellow, covered with fine soft hair ; fore legs short, straight and fine below the knee, arm swelling and full above ; hind quarters long and well filled ; hind legs short and straight below the hocks, with bones rather fine, squarely placed, and not too close together ; hoofs small ; udder full in size, in line with the belly, extending well up behind ; teats of medium size, squarely placed and wide apart, and milk veins very prominent. The color is generally cream or yellow, with more or less white, and the fine head and neck give the cows and heifers a fawn-like appearance, and make them objects of attraction in the park ; but the narrow hind quarters, and generally poor appearance behind, meet many objections among those who have been accustomed to prize fullness of form and square hind quarters.

It is asserted by Col. Le Couteur, of the Island of Jersey, that, contrary to the general opinion here, the Jersey cow, when old and no longer wanted as a milker, will, when dry and fed, fatten rapidly, and produce a far greater quantity of butcher's meat, than is supposed. An old cow, he says, was put up to fatten in October, 1850, weighing 1,125 lbs., and when killed the 6th of January, 1851, she weighed 1,330 lbs., having gained 205 lbs. in ninety-eight days, on 20 lbs. of hay, a little wheat straw, and 30 lbs. of roots, consisting of carrots, Swedes and mangold wurzel, a day. The prevailing opinion here is based on the general appearance of the cow in milk, no experiments having been made, to my knowledge, and no opportunity to form a correct judgment from actual observation having been furnished; and it must be confessed that the general appearance would amply justify the conclusion.

The common practice of allowing heifers to take the bull at a year old or little over, can hardly be too strongly condemned. It checks the growth of the animal, unless she is kept dry during the third year, which is not apt to be the case, and otherwise injures her constitution.

With respect to the profit of crossing our common stock with the Jersey, too few experiments have as yet been made to afford correct data on which to form an opinion. In a case of my own, the Jersey bull and a grade Ayrshire cow have produced a heifer, now two years old, which for beauty of form, docility of disposition, and quantity and richness of milk, can with difficulty be surpassed; but one experiment proves nothing, and a series of careful observations are needed to settle it conclusively.

As working oxen, there is no reason to suppose they would be at all superior, nor indeed equal to the common stock of the country, and they cannot, therefore, be recommended on that ground.

Yet notwithstanding the current of opinion is strongly against them so far as their adaptation to the farmers' wants is concerned, their numbers have largely increased among us, and there will be opportunity for the farmer to satisfy himself with regard to the Jerseys, if he wishes to try them. In 1853 there were only about seventy-five pure bred Jerseys in the State. Now they are numbered by hundreds.

The largest herds in the State are those of Thomas Motley, Jr., of Jamaica Plain; John P. Cushing, of Watertown; William Spencer, of Lowell; W. A. Harris, of Newton; and the beautiful herd kept by T. M. Stoughton, of Gill. Many superb animals are owned by individuals who have not full herds of Jerseys.

The premiums on Jerseys were the same as on short-horns, the list of which was given on page 19.

The entries of Jerseys were as follows:—

No. 1.—Cow, "Fanny," 3 years old, owned by Ariel Low, Roxbury.
2.—Bull, "Caleb," 1 year old, owned by John P. Cushing, Watertown.
3.—Cow, "Susy," 5 years old, owned by John P. Cushing, Watertown.
4.—Heifer, "Sallie," 1 year old, owned by John P. Cushing, Watertown.
5.—Heifer, "Sukie," 1 year old, owned by John P. Cushing, Watertown.
6.—Bull and four Cows, owned by John P. Cushing, Watertown. (For herd premium.)
7.—Cow, "Flora," 7 years old, owned by Jonathan French, Roxbury.
8.—Bull, "Czar," 2 years old, owned by Jonathan French, Roxbury.
9.—Bull, "King Phillip," 2 years old, weight 1,085 lbs., and owned by M. Hartwell, Littleton.
10.—Bull, "Major," 5 years old, owned by Thos. Motley, Jr., West Roxbury.
11.—Cow, "Flora," 8 years old, owned by Thos. Motley, Jr., West Roxbury.
12.—Cow "Susy," 7 years old, owned by Thos. Motley, Jr., West Roxbury.
13.—Cow, "Flirt," 5 years old, owned by Thos. Motley, Jr., West Roxbury.
14.—Cow, "Nelly," 3 years old, owned by Thos. Motley, Jr., West Roxbury.
15.—Bull, "Dick Swiveller," 1 year old, owned by Thos. Motley, Jr. West Roxbury.
16.—Bull and four Cows, owned by Thos. Motley, Jr., West Roxbury. (For herd premium.)
17.—Bull, "Bloomfield," 3 years old, owned by Aaron D. Weld, West Roxbury.
18.—Bull, "Napoleon," 2 years old, owned by A. S. Lewis, Framingham.
19.—Heifer, "Effie," 1 year old, owned by A. S. Lewis, Framingham.
20.—Bull, "Fremont," 1 year old, owned by Thos. W. Pierce, Topsfield.
21.—Bull, "Napoleon," 3 years old, owned by Joseph Burnett, Southborough.

No. 22.—Bull, "Emperor," 3 years old, owned by C. C. Field, Leominster.
23.—Bull, "Duke," 1 year old, owned by H. H. Hunnewell, West Needham.
24.—Cow, "Daisy," 3 years old, owned by H. H. Hunnewell, West Needham.
25.—Bull, "Napoleon," 3 years old, owned by Wm. Spencer, Lowell.
26.—Heifer, "Dolly," 7 months old, owned by Wm. Spencer, Lowell.
27.—Cow, "Duchess," 7 years old, owned by Wm. Spencer, Lowell.
28.—Bull, "Norfolk," 2 years old, owned by George B. Loring, Salem.
29.—Bull, "Tom Corwin," 5 months old, weight 390 lbs., and owned by G. T. Thacher, Dorchester.
30.—Cow, "Alice," 7 years old, owned by the State, and kept at the State farm at Westborough. Entered for exhibition only.

The committee on Jersey cattle shown at the first exhibition of the Massachusetts Board of Agriculture, having attended to that duty, beg leave to submit the following

REPORT:

The number of animals entered for premium, was twenty-nine, and the committee were much pleased at their great excellence as a class; indeed, it was a source of much disappointment to them, that they were unable to award more premiums among so many truly meritorious animals. All of the cows and heifers entered of this breed, were, with one exception, obliged by the rules of the exhibition, to be entered in one class, and as the committee had but three premiums to award in each class, they were obliged to pass many deserving animals, any one of which, under different circumstances, would have undoubtedly received a premium. In fact, the twelve cows entered as "three years old and upwards," were specimens of the Jersey breed, such as probably cannot be surpassed, as a class, in this country.

To the heifer "Effie," belonging to A. S. Lewis, of Framingham, the committee awarded the second premium in her class; had it not been that her growth was retarded by an accident, she would have undoubtedly received the first premium.

The bull calf "Norfolk," exhibited by Mr. George T. Thacher, of Dorchester, was a remarkably fine animal, also the heifer calf of Mr. Spencer, but your committee were not authorized by the rules to award any premiums.

The cattle from the State farm at Westborough, were entered for exhibition only.

Your committee would embrace this opportunity to impress upon those interested in Jersey cattle, the importance of ascertaining with certainty, the pedigree of their animals, so as to be able to trace them back directly to the island of Jersey, as unless that is done, there is no certainty of their being of pure blood; and without purity of blood, the breed will assuredly deteriorate. Many animals are imported into this country from England, under the name of Alderney cattle, which is there understood to mean, cattle from any of the Channel islands, (of which Jersey is one,) and the so called Alderney, may be either a Jersey, a Gurnsey, an Alderney, or a mixture of any of them; or, it may be a French or Norman animal, which from their outward resemblance to unpractised eyes, are brought over from France to England, and sold under the name of Alderney cattle, by unprincipled men who make it a business. The only way to obtain the pure Jersey cattle, is to import them from the island of Jersey direct, or to be able to trace directly to such imported animals. Your committee, therefore, in their awards, have had due regard to purity of blood, as the first great point of excellence.

Their awards are as follows:—

Herd Premiums.—For the best bull and four cows belonging to any one person. First premium to Thomas Motley, Jr., of West Roxbury; second, diploma, John P. Cushing, Watertown.

Bulls, three years old and upwards—First, to Thomas Motley, Jr., of West Roxbury, for "Major;" second, to C. C. Field, of Leominster, for "Emperor;" third, to A. D. Weld, West Roxbury, "Bloomfield."

Two years old and under three years—First, to M. Hartwell, of Littleton, for "King Philip;" second, to Geo. B. Loring, of Salem, for "Norfolk;" third, to Jonathan French, of Roxbury, for "Czar."

One year old and under two years—First, to Thomas W. Pierce, of Topsfield, for "Freemont;" second, to Thomas Motley, Jr., of West Roxbury, for "Dick Swiveller;" third, to H. H. Hunnewell, of West Needham, for "Duke."

Cows and Heifers, three years old and upwards—First, to Thomas Motley, Jr., of West Roxbury, for "Flirt;" second, to J. P. Cushing, of Watertown, for "Old Red;" third, to William Spencer, of Lowell, for "Duchess."

Two years old and under three years—No entries.

One year old and under two years—Second, to A. S. Lewis, of Framingham, for "Effie."

For the committee,

WM. A. HARRIS, *Chairman.*

GRADE OR NATIVE STOCK.

The term breed, properly understood, applies only to animals of the same species, possessing, besides the general characteristics of that species, other characteristics peculiar to themselves, which they owe to the influence of soil, climate, nourishment and habits of life to which they are subjected, and which they transmit with certainty to their progeny. The characteristics of certain breeds or families are so well marked that if an individual supposed to belong to any one of them were to produce an offspring not possessing them, or possessing them only in part, with others not belonging to the breed, it would be just ground for suspecting a want of purity of blood.

If this definition of the term breed be correct, no grade animals, and no animals not possessing fixed peculiarities or characteristics which they share with all other animals of the class of which they are a type, and which they are capable of transmitting with certainty to their descendants, can be recognized by breeders as belonging to any one distinct race, breed or family.

The term "native," is applied to a vast majority of our New England cattle, which, though born on the soil, and thus in one sense natives, do not constitute a breed, race or family, as properly understood by breeders. They do not possess characteristics peculiar to them all, which they transmit with any certainty to their offspring, either of form, size, color, milking or working properties. But though an animal may be made up of a mixture of blood almost to infinity, it does not follow that, for specific purposes, it may not, as an individual animal, be one of the best of the species. And for particular purposes, individual animals might be selected from among those commonly called natives, equal and perhaps superior, to any among the races produced by the most skilful breeding. There can be no impropriety in the use of the term "native," therefore when it is understood as descriptive of no known breed, but only as applied to the common stock of the country, which does not constitute a breed. But perhaps the whole class of animals commonly called "natives," would be better described as grades, since they are well known to have sprung from a great variety of cattle procured in different places and at different times on the continent of Europe and in England, and in the Spanish West Indies, brought together without any regard to fixed principles of breeding, but only from individual convenience, and by accident.

The earliest cattle imported into the Plymouth colony, and undoubtedly the earliest introduced into New England, were brought over in 1624. At the division of cattle which took place in 1627, three years after, one or two are distinctly described as black, or black and white, others as brindle, &c., showing that there was no uniformity of color. Soon after this date a large number of cattle were imported for the settlers at Salem and vicinity; and in 1631, '32 and '33, several importations were made into New Hampshire by Capt. John Mason, who, with Gorges, procured the patent of large tracts of land in the vicinity of Piscataqua River, and immediately formed settlements there. The object of Mason was to carry on the manufacture of potash, and for this purpose he employed the Danes; and it was in his voyages to and from Denmark that he procured many Danish cattle and horses, which were subsequently diffused over that whole region, and large numbers of which were driven to the vicinity of Boston and sold. These facts are authenticated by original documents and depositions now on file in the office of the secretary of state of New Hampshire. The Danish cattle are there described as large and coarse, of a yellow color; and it is supposed that they were procured by Mason as being best capable of enduring the severity of the climate and the hardships to which they were to be subjected. However this may have been, they very soon spread among the colonists of the Massachusetts Bay, and have undoubtedly left their marks on the stock of New England, which exist to some extent, even to the present day, mixed in with an infinite multitude of crosses with the Devons, the black cattle of Spain and Wales, and the long-horn and the short-horn, most of which were accidental, or due to local circumstances or individual convenience. Many of these New England cattle were of a very high order of merit, but to what particular cross it is due it is impossible to say. They make generally, hardy, strong and docile oxen, easily broken to the yoke and quick to work, with a fair tendency to fatten when well fed; while the cows, though often ill-shaped, are sometimes remarkably good milkers, especially as regards the quantity they give.

I have very often heard the best judges of stock among us say, that if they desired to select a dairy of cows for milk for sale, they would go around and select cows commonly called native, in preference to resorting to pure bred animals of any of the established breeds, and that they believed they should find such a dairy the most profitable.

But though we have already an exceedingly valuable foundation for improvement, no one would pretend to deny that our cattle are generally susceptible of it in many respects. They do not possess the size, the symmetry, nor the early maturity of the short-horns; they do not, as a general thing, possess the fineness of bone, the beauty of form and color, nor the activity of the Devons, or the Herefords; they do not possess that uniform richness of milk, united with generous quantity of the Ayrshires, but above all, they do not possess the power of transmitting the many good qualities which they often possess, to their offspring, which is a characteristic of all well established breeds. The raising of cattle has now become a source of profit, to a greater extent, at least, than formerly, and it becomes a matter of great practical importance to our farmers to take the proper steps to improve their stock. Indeed, the questions, what is the best breed, and what are the best crosses, and how shall I improve my stock, are now almost daily asked, and their practical solution would add many thousand dollars to the aggregate wealth of the farmers of Massachusetts, provided they would all study and see their own interests. The time is gradually passing away when the intelligent, practical farmer will be willing to put his cows to any mere "runt" of a bull, simply because his service may be had for twenty-five cents, for even if his progeny is to go to the butcher, the calf sired by a pure bred bull, particularly of a race distinguished for fineness of bone, symmetry of form and early maturity, will bring a much higher price at the same age than the calf sired by a scrub. Blood has a money value, which will sooner or later, be generally appreciated and willingly paid for. The simple object of the farmer is to get the greatest money return for his labor and his produce, and it is for his interest to obtain an animal, a calf for instance, that will yield the largest profit on the outlay. If a calf, for which the original outlay was five dollars or two dollars, will bring at the same age and on the same keep, more real net profit than another, the original outlay for which was but twenty-five cents, it is certainly for the farmer's interest to pay the larger original outlay, and have the superior animal. Setting all fancy aside, it is merely a question of dollars and cents; but one thing is certain, and that is, that the farmer cannot afford to keep poor stock. It eats as much and requires nearly the same amount of care and attention as stock of the best quality. And it is equally certain, that stock of ever so good a quality, whether grade, "native," or thorough bred, will be sure to deteriorate and sink to the level of poor stock, by neglect and want of proper attention.

How then are we to improve our stock? Not surely by indiscriminate crossing, with a total disregard to all well established principles. Not by leaving all the results to chance when they are within our own control by a careful and judicious selection. Two modes of improvement seem to suggest themselves to the mind of the breeder, either of which, apparently, promises good results. The first is to select from among our native cattle, the most perfect animals not known or suspected to be related to any of the well established breeds, and to use them as breeders. This is a mode of improvement, simple enough, if adopted and carried on with animals of any known breed, and indeed it is the only mode of improvement which preserves the purity of blood, but to do it successfully, requires great experience, a good and sure eye for stock, a mind free from prejudice and indefatigable patience and perseverance. It is absolutely necessary also to pay special attention to the calves thus produced, to furnish them at all times, summer and winter, with an abundant supply of nutritious food, and to regulate their food according to their growth and wants. Few men are to be found willing to undertake the Herculean task, of building up a new breed in this way. An objection meets us at the very outset, which is, that it would require a long series of years to arrive at any satisfactory results, from the fact that no two animals, made up as our "native" cattle are, of such a variety of elements and crosses, could be found sufficiently alike to produce their kind. The principle, that like produces like, may be perfectly true, and in the well known breeds it is not difficult to find two animals that will be sure to transmit their own characteristics to their offspring, but with two animals which cannot be classed with any breed, the defects of an ill bred ancestry will be liable to appear through several generations, and thus thwart and disappoint the expectations of the breeder. The objection of time and expense and disappointment attending this method should have no weight if there were no more speedy method of accomplishing equally desirable results.

The second mode is somewhat more feasible, and that is to select animals from races already improved and well nigh perfected, to cross with our cattle, using none but good specimens of pure bred males. The offspring of these animals will be grades, but grades are often better for the practical purposes of the farmer than pure bred animals. The skill of the breeder is especially manifest in the selection of the male, but this method of improvement requires less exact and practical knowledge than the first, from the fact that it is easier to appreciate the good points of an animal already perfected, or greatly improved, than to discover them in animals which it is our desire to improve, and which are inferior in form, possessing only the elements of improvement. It possesses also an immense advantage, since results may be far more rapidly attained and improvements effected which would be looked for in vain in the ordinary life of man, by the first method, that of creating or building up a race from the so called natives, by judicious selections. All grades are produced by this second method, but all grades are not equally good nor equally well adapted to meet the farmer's wants. It is desirable to know, then, what, on the whole, are the best and most profitable to the practical farmer.

We want cattle for distinct purposes, as for milk, beef, or labor. In by far the majority of cases in eastern Massachusetts and within forty miles of Boston, the farmer cares more for the milking qualities of his cows, especially for the quantity they give, than for their fitness for breeding or aptness to fatten. These latter points become more important in the western parts of the State where far greater attention is paid to breeding and to feeding, and where comparatively little milk is sold as milk, but in the form of butter and cheese. A stock of cattle that might suit one farmer might be wholly unsuited to another, and in each particular case, the breeder should have some special object in view and select his animals with reference to it. But there are some general principles that apply to breeding everywhere, and which, in many cases, are not well understood.

It would not be desirable, even if it were possible by crossing, to breed out all the general characteristics of many of our native cattle. They have many valuable qualities adapted to our climate, soil, and the geological structure of the country, and these should be preserved, while we modify the points in which many of them are deficient, such as a want of precocity and aptitude to fatten, coarseness of bone and want of symmetry often apparent, especially when the form of the animal does not indicate a near relation to some of the well known breeds.

It is a well known fact, that in crossing, the produce almost invariably takes after the male parent, especially in exterior form, in its organs of locomotion, such as the bones, the muscles, &c. Particularly is this the case when the male belongs to an old and well established breed, and the female belongs to no known breed and has no strongly marked and fixed points. Put a Galloway bull, for instance, to a Devon cow, and the calf will be hornless. Put a ram without horns to ewes with horns, and most of the lambs will be destitute of horns, that is, they take the characteristics of the father rather than the dam, and this rule holds good generally in breeding, though like all other rules, it has of course, its exceptions. Hence, the first principle which the good sense of the farmer would dictate, would be to select a bull from a breed most noted for the qualities he wishes to obtain, as perfect as possible, and especially in the parts which it is most desirable to increase. A bull of fine bone and other good points in perfection, will make up for the deficiency of some of these points in the cow.

On the other hand, the internal structure of the offspring, the organs of secretion, the mucous membranes, the respiratory organs, &c., are generally admitted by breeders to be imparted chiefly by the dam. Hence it has generally been found, that by taking a cow remarkable for milking properties, though deficient in many other points, as in the coarseness of bone and in early maturity, and putting to her a bull remarkable for symmetry of form and fineness of bone, the offspring will be superior to the cow in beauty of form and proportions, and still retain the milking qualities of the dam. This principle is questioned by some, who say that the milking qualities are transmitted through the male offspring, but I believe it is sustained by the experience of practical breeders. Mr. James Dickson, an experienced breeder and drover, says: "A great part of the art of breeding lies in the principle of *judicious crossing*, for it is only by attending properly to this, that success is to be attained and animals produced that shall yield the greatest amount of profit for the food they consume. All eminent breeders know full well that ill-bred animals are unprofitable both to the breeder and feeder. To carry out the system of crossing judiciously, certain breeds of cattle, sheep, pigs, &c., must be kept pure of their kind—males especially; indeed, as a general rule, no animal possessing spurious blood or admixture with other breeds, should be used. The produce in almost all cases assimilates to the male parent; and I should say that in crossing, the use of any males not pure bred is *injudicious*, and ought to be avoided." If, therefore, a cross is once effected with satisfactory results, it should be continued by resorting to pure bred bulls, and not by the use of any grade bulls thus obtained; for, though a grade bull may be a very fine animal, it has been found that he does not transmit his good qualities with any thing like the certainty of a pure bred one. The more desirable qualities are united in the bull the better; but the special reason for the use of a pure bred male in crossing, is not so much that the particular individual selected has these qualities most perfectly developed in himself, as that they are *hereditary in the breed* to which he belongs. The moment the line is crossed and the pedigree broken, uncertainty commences; and although the form of the grade bull may, in individual cases, be even superior to that of his pure bred sire, yet there is less likelihood of his transmitting the qualities for which his breed is most noted; and when it is considered that during his life he may scatter his progeny over a considerable section of country and thus affect the cattle of his whole neighborhood, it becomes a matter of no small public importance. And hence it was not thought desirable to encourage the raising of grade bulls by offering premiums for them at the State Fair.

Another well known fact in natural history is, that the size of animals depends very much upon the fertility of the region they inhabit. Where food is abundant and nutritious, they increase in size in proportion to the quantity and quality; and this size, under the same circumstances, will run through generations, unless interrupted by artificial means; and so if the food is more difficult to obtain, and the pastures are short, the pliancy of the animal organization is such that it naturally becomes adapted to it, and the animal is of smaller size; and hence Mr. Cline observes, that "the general mistake in crossing has arisen from an attempt to increase the size of a native race of animals, being a fruitless effort to counteract the laws of nature." Mr. Cline also says in his treatise "On the Form of Animals:" "Experience has proved that crossing has only succeeded in an eminent degree in those instances in which the females were larger than the usual proportion of females to males; and that it has generally failed when the males were disproportionally large. When the male is much larger than the female, the offspring is generally of an imperfect form; if the female be proportionally larger than the male, the offspring is generally of an improved form. For instance, if a well formed, large ram be put to ewes proportionally smaller, the lambs will not be so well shaped as their parents; but if a small ram be put to larger ewes, the lambs will be of an improved form." "The improvement depends on the principle, that the power of the female to supply her offspring with nourishment is in proportion to her size and to the power of nourishing herself from the excellence of her constitution; as larger animals eat more, the larger female may afford most nourishment to her young."

This would, perhaps, by some be regarded as another principle of breeding, that when improvement in form is desired, the size of the female selected should be proportionally larger than the male; though Lord Spencer, a successful breeder, strongly contested it, and Mr. Dickson, an excellent judge of stock, advised the attempt to build up a new breed by selecting some Zetland cows, a very diminutive breed of Scotch cattle, of good symmetry, points and handling, and a high bred West Highland bull to put to them. "The produce would probably be," says he, "a neat, handsome little animal, of a medium size between the two breeds. The shaggy hide, long horns, symmetry and fine points of the West Highlanders would be imparted to this cross, which would not only be a good feeder and very hardy, but the beef of superior quality. The great point would, of course, be the proper selection of breeding animals. The next step towards improving this would be the crossing of these crosses with a pure Hereford bull, which would improve the size, and impart still finer points, more substance, with greater aptitude to fatten. By combining these favorite breeds, the produce would, in all probability, be very superior, not only attaining to good weights, but feeding well and arriving at maturity at an early age. The breeder must not be satisfied and rest here, but go a point farther, and cross the heifers of the third cross with a short-horned bull." These successive steps imply the use of a bull of larger breed, though not necessarily, perhaps, proportionally larger than the cow in any individual case.

But though it is to the influence of the male that we are to look for improvements in the form, size, muscular development and general appearance of our stock, the influence of the female is no less important, and undoubtedly the safest course to pursue to obtain improved animals, is to select the best formed animals on both sides.

With regard to the particular breeds to select for crossing with our natives, opinions will naturally differ widely. Those who are favored with luxuriant pastures and abundance of winter feed, will have no objection to large sized animals and will naturally wish to obtain or possess grade short-horns ; and there is no breed in the world to which it is more desirable to resort under such circumstances, particularly where improvement in form, early maturity, and general symmetry is sought in union with other qualities. It is a remarkable and significant fact, that the large dairies of London are nearly filled with the short-horns, or short-horn grades, and the fact that this breed is selected in such circumstances for the production of milk to supply the milk market, speaks volumes in favor of this cross. It is found that grade short-horns, after yielding extraordinary quantities of milk, during which they very naturally present the most ungainly appearance, will, when dried off and fed, take on flesh very rapidly, and yield large weights of beef. If the farmer is so situated as not to desire to raise his calf, but to dispose of it at the highest price to the butcher, he will obtain the greatest weight of veal and of the highest quality, from the use of a pure bred short-horn or Hereford bull. But on poorer pastures, where there is too little feed to bring young stock to their most perfect development, the pure bred short-horns and high grades of the short-horn are thought, by some, to be too large, and consequently unprofitable. How far this objection to them might be obviated by stall feeding or soiling, and the use of roots, is for each one to consider who has these facilities at command.

Of the smaller breeds, we have among us the Devon, the Ayrshire and the Jersey. All these breeds give milk of a very rich quality. The Ayrshires have been bred with reference both to quality and quantity, and the grades are usually of a very high order. The best milkers I have ever known in proportion to their size, have been grade Ayrshires, and this is also the experience of many who keep dairies for the manufacture of butter. Though the Ayrshire has never been considered a great favorite with the butcher, yet a cross obtained from an Ayrshire cow of good size and a pure bred short-horn bull, will produce a stock which it will be hard to beat, especially if the bull belong to any of the families of short-horns which have been bred with reference to their milking qualities, as some of them have.

An exceedingly good cross is got from an Ayrshire cow and a Hereford bull, especially so far as the value of the meat is concerned.

The pure bred Devon bull, put to a good, young native cow, produces a beautiful and valuable cross, and if the cow is a good milker to begin with, there would be no fear of materially lessening the quantity in the offspring, while its form and other qualities would probably be greatly improved. The high character of the grade Devons is shown in the awards of the committee on grade stock. Grade Devons are also very much sought for working oxen, and high prices are readily obtained for them, while as beef cattle they are also very highly esteemed. On farms where the making of butter is an object of pursuit and profit, an infusion of Jersey blood will be likely to secure richness of milk and high flavored, delicious butter. Many good judges of stock recommend this cross for dairy purposes, and it is worthy of careful trial. One thing is certain, that "if we would rear a good race of milkers, having regard to the quality as well as the quantity of their produce, it is absolutely necessary that we should breed from stock that has already acquired a reputation in this respect," and then pay a far greater than the usual degree of attention to them.

It should not be overlooked that the foundation of all successful breeding, whether of pure breeds or crosses, is in good feeding. A calf never develops the good points he possesses to any degree of perfection on scanty and poor feed. Good feed is especially desirable up to the age of two or three years. When the constitution is fully established and the size well attained, the necessity of feeding is not so great; that is, the animal will have attained some vigor of constitution, which will enable it to go on and perfect and develop its good points with less care. The calf should not be overfed, but kept in a thriving condition.

No better proof exists of the hardy constitution and the adaptation of our native stock, than the fact that so many of them are so excellent, in many respects, notwithstanding the neglect and want of nutritious and abundant food, from which so many of them suffer, especially in the early part of their lives. Large size and a full development can only be attained on wholesome food and an abundance of it, when the frame of the young animal is rapidly building up. If a man has valuable blood animals, and wishes to make the most of them, he knows he must take care of them, and he does take care of them, for without great care and attention they would inevitably deteriorate. Many of our "native" animals are equal to good pure bred stock, even with all the hardships to which they are often subjected; and with equal care and attention, many more of them would be of a superior order.

No premiums were offered on grade or native bulls. The premiums on grade or native cows, both for the herds and single animals, were the same as those offered on short-horn cows and heifers, on page 19.

The entries of grade or native cows and heifers, were as follows:—

No. 1.—Bull, 18 months, one-half Ayrshire, owned by George Babcock, Brookline.

2.—Cow and calf, former 5 years old, owned by Geo. R. Sampson, Brookline.

3.—Four cows, grade Ayrshire, owned by John Brooks, Jr., Princeton. (For herd premium.)

No. 4.—Cow, "White Belly," half Ayrshire, 6 years old, owned by John Brooks, Jr., Princeton.

5.—Cow, "Mary," half Ayrshire, 6 years old, owned by John Brooks, Jr., Princeton.

6.—Cow, "Alice," three-fourths Ayrshire, 6 years old, owned by John Brooks Jr., Princeton.

7.—Cow, "Speckled," three-fourths Ayrshire, 6 years old, owned by John Brooks, Jr., Princeton.

8.—Heifer, seven-eighths Ayrshire, 2 years old, owned by John Brooks, Jr., Princeton.

9.—Heifer, seven-eighths Ayrshire, 2 years old, owned by John Brooks, Jr., Princeton.

10.—Heifer, seven-eighths Ayrshire, 2 years old, owned by John Brooks, Jr., Princeton.

11.—Heifer, seven-eighths Ayrshire, 1 year old, owned by John Brooks, Jr., Princeton.

12.—Heifer, seven-eighths Ayrshire, 1 year old, owned by John Brooks, Jr., Princeton.

13.—Heifer, seven-eighths Ayrshire, 1 year old, owned by John Brooks, Jr., Princeton.

14.—Bull, fifteen-sixteenths Ayrshire, 1 year old, owned by John Brooks, Jr., Princeton.

15.—Heifer, fifteen-sixteenths Devon, 2 years old, owned by Harvey Dodge, Sutton.

16.—Heifer, fifteen-sixteenths Devon, 2 years old, owned by Harvey Dodge, Sutton.

17.—Cow, fifteen-sixteenths Devon, 7 years old, owned by Harvey Dodge, Sutton.

18.—Cow, half Devon and half native, 7 years old, owned by Harvey Dodge, Sutton.

19.—Heifer, grade, "Daisy," 2 years old, owned by Samuel H. Rhodes, Concord.

20.—Four cows or heifers, grade Devon, owned by Harvey Dodge, Sutton. (For herd premium).

21.—Heifer, "Cream Pot," 1 year old, owned by Samuel Jaques, "Ten Hills Farm," Somerville.

22.—Cow and calf, "Cream Pot," 6 years old, owned by Samuel Jaques, "Ten Hills Farm," Somerville.

23.—Cow, half Jersey and half native, 3 years old, owned by Marshall P. Wilder, Dorchester.

24.—Heifer, half Jersey and half native. 2 years old, owned by Marshall P. Wilder, Dorchester.

25.—Cow and calf, grade, 3 years old, owned by John Brooks, Jr., Princeton.

26.—Cow, grade, 3 years old, owned by John Brooks, Jr., Princeton.

27.—Heifer, grade, "Nelly," 4 years old, owned by J. W. Hollis, Brighton.

No. 28.—Heifer, grade, 3 years old, owned by Warren Ordway, Bradford.

29.—Heifer, grade, 1 year old, owned by Warren Ordway, Bradford.

30.—Heifer, "Valley Maid," fifteen-sixteenths Durham, 13 months old, owned by Thomas J. Field, Northfield.

31.—Bull, grade, 2 years old, owned by William Davis, Middleborough.

32.—Bull, grade, 1 year old, owned by William Davis, Middleborough.

33.—Bull, grade, 3 years old, owned by William Robinson, Jr., Barre.

34.—For herd premium, eight grade cows, by Wm. Robinson, Jr., Barre.

35.—Heifer, grade, 3 years old, owned by William R. Barrett, Barre.

36.—Heifer, grade, 2 years old, owned by William R. Barrett, Barre.

37.—Bull, "The Czar," grade, 3 years old, owned by William Adams, West Brookfield.

38.—Bull, "Daniel Webster," grade, 17 months old, weight 1,068 lbs. owned by A. Nichols, Bradford.

39.—For herd premium, four cows, natives, by Asa G. Sheldon, Wilmington.

40.—Heifer, fifteen-sixteenths, grade Durham, 19 months old, owned by Calvin Baker, Brimfield.

41.—Heifer, fifteen-sixteenths, grade Durham, 19 months old, owned by Calvin Baker, Brimfield.

42.—Cow, half Durham and half Ayrshire, 6 years old, owned by Theodore Prentice, Boston.

43.—For herd premium, four grade cows, owned by Henry Boyles, Princeton.

44.—Heifer, two-thirds Ayrshire, and one-third Durham, 2 years old, owned by Theodore Prentice, Boston.

45.—Cow, 6 years old, owned by Henry Boyles, Princeton.

46.—Cow, half Ayrshire and half native, 3 years old, owned by Henry Boyles, Princeton,

47.—Bull, grade, 3 years old, owned by William Adams, Jr., West Brookfield.

48.—Heifer, "Beauty," grade, 1 year old, owned by S. W. Buffum, Winchester, N. H.

49.—Heifer, "Red Rose," grade, 1 year old, owned by S. W. Buffum, Winchester, N. H.

50.—Cow, grade, 10 years old, owned by Samuel Ellsworth, Barre.

51.—Heifer, grade, "Daisie," 2 years old, owned by Samuel Ellsworth, Barre.

52.—Heifer, grade, "Lillie," 2 years old, owned by Samuel Ellsworth, Barre.

53.—Heifer, grade, "Cora," 3 years old, owned by Samuel Ellsworth, Barre.

54.—For herd premium, four grade cows and heifers, owned by Samuel Ellsworth, Barre.

55.—Heifer, grade, 16 months old, owned by Dexter Washburn, Natick.

56.—For herd premium, four grade Devon cows, owned by Nathaniel Dodge, Sutton.

No. 57.—Heifer, "Jennie," half Jersey, 18 months old, owned by Thomas W. Pierce, Topsfield.

58.—Heifer, "Mollie," grade, 2 years old, owned by C. F. Curtis, Jamaica Plain.

59.—Heifer, "Peggie," grade, owned by Moses Newell, West Newbury.

60.—For herd premium, four grade Devon cows, owned by William Eames, Worcester.

61.—Heifer, "Nellie," grade Devon, 2 years old, owned by William Eames, Worcester.

62.—Heifer, "Katie," grade Devon, 2 years old, owned by William Eames, Worcester.

63.—Heifer, "Flirt," grade Devon, 1 year old, owned by William Eames, Worcester.

64.—Cow, grade Devon, 8 years old, owned by Wm. Eames, Worcester.

65.—Cow, grade Devon, 3 years old, owned by Wm. Eames, Worcester.

66.—Bull, "Hero," grade Devon, 2 years old, owned by S. A. Merrill, Salem.

67.—Heifer, "Beauty," grade, 2 years old, owned by Samuel H. Rhoades, Concord.

68.—Heifer, "Jennie," grade, 18 months old, owned by Freeman Ellis, Roxbury.

69.—Heifer, "Cowslip," half Durham, 2 years old, owned by Samuel Ellsworth, Barre.

70.—Heifer, "Brilliant," grade, 1 year old, owned by Howard Ford, Roxbury.

71.—Heifer, "Camilla," grade, 3 years old, owned by George B. Loring, Salem.

72.—Heifer, "Ada," half Jersey, 2 years old, owned by George B. Loring, Salem.

73.—Bull, grade, 2 years old, owned by Thomas Smith, Dedham.

74.—Heifer, "Myrtle," grade, 3 years old, owned by William Gowen, Dorchester.

75.—Cow and calf, grade, 9 years old, owned by Thomas Munyan, Boston.

76.—Heifer, "Nonsuch," grade, 18 months old, owned by Thomas Munyan, Boston.

77.—Cow, "Bettie," grade, 7 years old, owned by S. A. Merrill, Salem.

The committee on "Native and Grade Stock," No. 6, submit the following

REPORT:

A large proportion of the cattle of the farmers of Massachusetts, being "native or grade stock," it was wise in the State Board of Agriculture to offer liberal premiums for that class of cattle. And it is a gratifying circumstance that a full response was made by the farmers in that important department of farm stock.

The importation of English cattle, of the best blood, has been the means of a great improvement of our stock, and great credit is due to those individuals and societies who have taken the lead in that good work. But it is yet a mooted question what breed of English cattle will best mix or cross with our native cattle and produce the best result. The Devons and the Ayrshires, when crossed with our native cattle, have produced a progeny much superior to the native parent. The Durham also, for early growth, has produced grade cattle of superior size, and fattening and milking qualities. But it is supposed by some that the Jersey will not cross so well with our native stock;—producing, especially in the second and subsequent generations, an inferior race—losing, to some extent, its peculiar milking properties. But that is yet to be tested by experiment and repeated trial.

A cross of the native and Devon produces cattle of fine form, beautiful color and fair milking qualities. This fact was illustrated in the cattle submitted to our examination;—the first and other premiums having been awarded to cows of that class. For some parts of our State, where the pasturing is not of a very superior character, middling sized cattle, undoubtedly, produce the most profit to the farmer. Working oxen, which, at 7 years of age, will weigh from 3,200 to 3,500 pounds, are for many farmers the most valuable, as they can be raised at the least comparative cost. But richer and more luxuriant pastures will, advantageously, produce the larger Durham breed with much profit.

The cattle of division No. 6, showed evident signs of nearly all the English breeds—the Devon, Durham and Ayrshire predominating. But quite a large number of cows were, so far as we could judge, of native blood; showing that we have cows of that stock, equal, or nearly so, to any of the imported breeds.

Exhibitions like this will afford a great amount of information to the practical and inquiring farmers of our State, and we shall thus be able to arrive at correct conclusions on the great questions of native, grade and thorough bred cattle.

The whole number of entries in this class was 69, including 8 herds of cows and 10 bulls, making a total of over 90 animals, all of which were of a superior character. As only eleven premiums could be awarded to these animals, the decision was an onerous and difficult duty. The committee gave unwearied attention to the matter referred to them,—examining and re-examining all the animals several times, and hope they have done justice to all concerned. They award the following premiums :—

Herds of four Cows.—Entry.—Number of herds entered, 8; first premium to No. 10, Harvey Dodge, of Sutton, $50; second, to No. 3, John Brooks, Jr., of Princeton, diploma.

Cows three years old and upwards—first, to No. 54, William Eames, of Worcester, $30; second, to No. 41, Henry Boyles, of Princeton, $20; third, to No. 29, William Robinson, Jr., of Barre, $15.

Cows two years old—first, to No. 50, N. Dodge, of Sutton, $20; second, to No. 33, William Barrett, of Barre, $15; third, to No. 63, Samuel Ellsworth, of Barre, $10.

Yearling Heifers.—First, to No. 37, Calvin Baker, of Brimfield, $15; second, to Nos. 7—9, John Brooks, Jr., of Princeton $10; third, to No. 26, Thomas J. Field, of Northfield, $5. To S. W. Buffum, of Winchester, N. H., for two very fine yearling heifers, the committee award a gratuity of $5.

Nos. 19 and 20, a grade cow and heifer entered by Marshall P. Wilder, of Dorchester, richly deserved a premium. But as he declined to receive it, we award him an honorary notice of the animals.

Bulls.—There were ten entries of grade bulls, all of them superior animals. As it is the practice of the Board to encourage thorough bred bulls, rather than those of mixed blood, no premiums were offered. As an honorary premium is in many cases considered full equal to a premium in money, and as the committee decreed several of the bulls worthy of such a notice, we have awarded them as follows :—

No. 27, first honorary premium, William Davis, of Middleborough; No. 34, second, William Adams, of West Brookfield; No. 35, third, H. Nichols, of Bradford, on bull, "Daniel Webster."

Mr. Thomas Smith, of Dedham, also exhibited a fine grade bull, "Jamestown," by "Beverly," dam Jamestown, a Suffolk cow presented to R. B. Forbes, by the Lord Lieutenant of Ireland, at the time of his visit in the U. S. ship Jamestown, in 1854. This cow was a great milker. "Beverly" was sired by "Colonel," a first prize bull in the island of Jersey, dam "Flora," imported by Thomas Motley, Jr., and widely known as one of the best butter cows in the world.

Respectfully submitted,

HENRY W. CUSHMAN, of Bernardston,
HENRY R. KEITH, of Grafton,
WM. BUCKMINSTER, of Framingham,
PETER HARWOOD, of Barre,

Committee.

William Robinson, Jr., in entering his herd, submitted the following

STATEMENT:

I offer for the herd premium, under the head of grade or native stock, the following eight cows: "Cleopatra," three years old, bred by myself, sired by the pure bred short-horn "Duke," (Am. herd-book. —) Dam, half short-horn. "Daisy 2d," three years old, bred by me, sired by "Duke," as above; dam, "Daisy," sired by "Young Monarch." (Am. H. B. 1,149.) "Flora," four years old, bred by S. Bemis, Jr., of Barre, sired by "Duke," as above; dam, native. "Lady Washington," six years old, bred by S. Bemis, Jr., sired by Young Monarch, as above; dam, native. "Fanny," eight years old, bred by me, sired by "Hawthorn." (Am. H. B., 74.) Dam half short-horn. "Jessie," eight years old, bred by me, sired by "Hawthorn," as above. Dam, $\frac{5}{8}$ short-horn. "Fountain," ten years old, bred by me, sired by "Young Monarch," as above. Dam, native. "Victoria," ten years old, bred by G. J. Bemis, of Barre, sired by "Young Monarch." Dam, $\frac{5}{8}$ short-horn.

They were all sired, as will be seen, by thorough-bred bulls, whose pedigrees are recorded in the herd-book, and are all with calf now by my thorough-bred bull, "The Count."

I exhibit, also, "The Count," with my cows, although not required by the rules of the Board to do so. Yet I consider a well bred sire of the greatest importance to every herd.

He is three years old, bred by Jonathan Thorn, of Dutchess Co., New York; sired by his imported bull St. Lawrence; dam, imported cow, Countess, which has recently been sold for $1,000. Full pedigree in American herd-book, No. 1,028.

He has served 122 cows, at $5 per cow, besides my own cows, 21 in number, the past season. He has been stabled all the time during the present season, but had been turned to pasture seasons before. His feed has been three quarts of meal, with from 15 to 20 lbs. of chopped hay per day; he gained in weight from the first of May to the first of September, a period of four months, 120 lbs., and served most of the 140 odd cows within that time.

I have sold his calves from the cows Cleopatra and Flora, to be taken as soon as dropped, for $50. I have an offer of $30 per head for the calves of Jessie, Lady Washington and Victoria, if heifers.

It was not known to me during the time of trial, in June, the number required for the herd premium by the State, therefore, I give you the statement of the trial of seven made at that time, and one made of Victoria in July, she not being in milk during the trial of the others, as follows :—

Cleopatra, yielded during the first seven days of June. $253\frac{5}{8}$ lbs. milk. The three days following yielded $111\frac{1}{2}$ lbs. of milk, from the cream of which was made 5 lbs. of butter; 22 lbs. of milk making a pound of butter.

Daisy 2d, yielded during the same time, seven first days of June, 272 lbs. of milk; the three following days $110\frac{1}{2}$ lbs. of milk, which made 4 lbs. 9 oz. butter; about 24 lbs. milk making a pound of butter.

Flora, yielded during the first seven days of June 298 lbs of milk, and the three following days $126\frac{1}{4}$ lbs., which made 5 lbs. 2 oz. butter; 21 lbs. milk making a pound of butter.

Lady Washington, yielded during the first seven days of June, $398\frac{1}{2}$ lbs. of milk, the three following days 171 lbs. of milk, which made $7\frac{1}{2}$ lbs. of butter; $22\frac{4}{5}$ lbs. milk making a pound of butter.

Fannie, yielded during the first seven days $311\frac{1}{2}$ lbs. of milk, the three following days $141\frac{1}{4}$ lbs. of milk, which made $6\frac{1}{2}$ lbs. butter, less than 22 lbs. of milk making a pound of butter.

Jessie, yielded during the first seven days of June $293\frac{1}{4}$ lbs. of milk, the three following days $128\frac{1}{4}$ lbs. of milk, which made 6 lbs. of butter; 21 lbs. of milk making a pound of butter. She had been in milk fifteen months, having had her last calf in March, 1856. She gave 60 lbs. of milk a day in June, 1856.

Fountain, yielded during the first seven days of June 381 lbs. of milk, and the three following days $166\frac{1}{4}$ lbs., which made 6 lbs. 14 ozs. butter; 24 lbs. milk making a pound of butter.

Cheese was made from the milk of the seven cows during the first seven days of June, and yielded 232 lbs. of cheese, from $2{,}207\frac{7}{8}$ lbs. milk, making one pound of cheese to about $9\frac{1}{2}$ lbs. of milk. A specimen of the cheese made at that time is presented for your examination.

The seven cows made, during the three days trial, 41 lbs. 9 oz. of butter from 955 lbs. of milk, making 1 lb. of butter to 23 lbs. of milk. It will be seen that the milk which makes a pound of butter will make $2\frac{1}{2}$ lbs. of cheese.

Victoria, yielded during the first ten days of July, 507 lbs. of milk, from the cream of which was made 21 lbs. of butter, 24 lbs. of milk making a pound of butter. The weather during this trial was not as favorable for making butter as during the trial of the others.

My cows had no extra feed during the trial; they were turned to pasture the 15th of May, having no other food than pasture until the 10th of August, when they were fed once a day with corn-stalks till

20th September; since that time they have had pumpkins once a day. My dairy consists of 18 cows, one of which has been farrow this season; one lost her calf, and of the others I am raising five; four sold at $10 per head, to raise; two for $6 per head, to raise; the other five cows' calves were engaged for $25; two of them had twins, which makes 18 calves raising, equal to the number of cows. I have made from my dairy 8,213 lbs. of new milch cheese, and 261 lbs. butter.

My cows are kept in the stable during the winter, except when out to water. I keep litter under them all the time they remain in the stable. Corn-fodder, straw, and poor hay is fed to them from the time of putting up until the first of March, then good hay; and from the time of calving till they go to grass, a small allowance of grain is fed. Extra expense in feeding I do not consider as profitable as extra pains in the selection of animals for breeders.

John Brooks, Jr., also presented, with his herd, the following

STATEMENT:

I enter the following animals under Class one, Number 6, viz.: Four cows for the herd premium: White-belly, half Ayrshire, 6 years old, dropped her last calf June 25, 1857. Sold at six weeks old for $9. Will calve again in April, 1858. Her live weight is 1,010 lbs. Her yield of milk the first ten days of August, 1857, was 444 lbs.; the first ten days of September was 439¼ lbs., in the twenty days 883¼ lbs., which milk made 34 lbs. of butter; 3.869 per cent. of the milk was butter; average daily flow of milk was 44.162 lbs.; average daily flow of milk on her live weight was 4.372 per cent.

Cow, Mary, half Ayrshire, six years old, dropped her last calf in March, 1857; will calve again in March, 1858; sold her calf at ten days old, to raise, for four dollars; her yield of milk first ten days in June, 1857, was 429 lbs.; first ten days in September was 416½ lbs., which milk made 42 lbs. of butter; yield of milk in twenty days 845½ lbs.; daily flow of milk, averaged for twenty days, 42.275 lbs.; 4.967 per cent. of her milk was butter; her live weight is 1,120 lbs.; average daily flow of milk on her live weight, 3.774 per cent.

Cow, Alice, ¾ Ayrshire, six years old; dropped her last calf March 25, 1857, which I am raising; it was worth at six weeks old, ten dollars; calves again in March, 1858; her live weight is 1,012 lbs.; her yield of milk for ten days in June, 1857, was 358 lbs.; first ten days in September 344¾ lbs., in the twenty days 702¾ lbs., which milk made 28 lbs. of butter; 3.984 per cent. of her milk was butter; average daily flow of milk was 35.137 lbs.; average daily flow of milk on her live weight was 3.472 per cent.

Cow, Speckled, ¾ Ayrshire, six years old; dropped her last calf April 6, 1857; sold to raise at one week old, for $3.50; calves again in April, 1858; her live weight 980 lbs.; her yield of milk first ten days in June, 1857, was 327¼ lbs.; first ten days in September, 316½ lbs., in the twenty days 643¾ lbs., which made 25 lbs. of butter; 3.883 per cent. of her milk was butter. Average daily flow of milk was 32.187 lbs.; average daily flow of milk on her live weight was 3.284 per cent.

All these cows are grade Ayrshires, from the bull "McGregor," imported by the Massachusetts Society for the Promotion of Agriculture, and presented by them to the Worcester County Agricultural Society, except "Speckled," whose dam was one-half Ayrshire, from the bull presented by John P. Cushing, of Watertown, to the Worcester County Agricultural Society.

RECAPITULATION.

Yield of milk of the herd in twenty days, 3,075¼ pounds.

Yield in butter of the herd in twenty days, 129 pounds.

Average per cent. of the milk which was butter, 4.176.

Average daily flow of milk, for each cow of the herd, for twenty days, 38.440 pounds.

Average daily yield of butter for each cow of the herd, 1.613 pounds.

Live weight of the herd, 4,122. Daily flow of milk on the live weight of the herd 3.732 per cent.

Feed of herd, pasture grass only.

MILCH COWS.

In North Holland, the attention of the farmers is devoted especially to the dairy and the making of cheese. They support themselves almost exclusively upon this branch of farming, and hence it is held in the highest respect and carried to a higher degree of exactness and perfection, perhaps, than in any other part of the world. They are especially particular in the breeding, keeping, and care of milch cows, as on them their whole success depends. The following characteristics of a well-developed and well-kept milch cow, I translate literally from an excellent and practical little treatise on The Dutch System of Breeding Cattle, and Dairy Husbandry, recently published by Ellerbrock. "She should have," he says, "a considerable size, not less than two Amsterdam ells, or four and a half feet girth, with a length of body corresponding; legs proportionally short; a finely formed head, with a forehead or face somewhat concave; clear, large, mild and sparkling eyes, yet with no expression of wildness; tolerably large and stout ears standing out from the head; fine well-curved horns; a rather short than long, thick, broad neck, with large dewlap, well set against the chest and withers; the front part of the breast and the shoulders must be broad and fleshy; the low hanging dewlap must be soft to the touch; the back and loins must be properly projected, somewhat broad, the bones not too sharp, but well covered with flesh; the animal should have long, curved ribs, which form a broad breast-bone; the body must be round and deep, but not sunken into a hanging belly; the rump must not be uneven, the hip bones should not stand out too broad and spreading, but all the parts should be level and well filled up; a fine tail, set moderately high up and tolerably long, but slender with a thick bushy tuft of hair at the end hanging down below the hocks; the legs must be short and low but strong in the bony structure, the knees broad with flexible joints; the muscles and sinews must be firm and sound, the hoofs broad and flat, and the position of the legs natural, not too close and crowded; the hide covered with fine glossy hair, must be soft and mellow to the touch and set loose upon the body. A large, rather long, white and loose udder, extending well back, with four long teats, serves also as a characteristic mark of a good milch cow. Large and prominent milk veins must extend from the navel back to the udder; the belly of a good milch cow should not be too deep and hanging. The color of the North Dutch cattle is mostly variegated. Cows with only one color are no favorites. Red or black variegated, gray and blue variegated; roan, spotted and white variegated cows are especially liked."

In the "Farmers' Encyclopædia," the marks of a good milch cow are stated as follows: "A milch cow, good for the pail as long as she is wanted, and then quickly got into marketable condition, should have a long and rather small head; a large headed cow will seldom fatten or yield much milk. The eye should be bright, yet with a peculiar placidness of expression;

the chaps thin, and the horns small. The neck may be thin towards the head, but it must begin to thicken, and especially when it approaches the shoulder; the dewlaps should be small; the breast, if not so wide as in some that have an unusual disposition to fatten, yet should be very far from being narrow, and it should project before the legs; the chine to a certain degree fleshy, and even inclining to fulness; the girth behind the shoulders should be deeper than is usually found in the short-horn; the ribs should be spread out wide, so as to give as globular a form as possible to the carcass, and each should project further than the preceding one, to the very loins. She should be well formed across the hips and in the rump, and with greater length than the milker generally possesses; or if a little too short, not heavy. If she stands a little long on the legs, it must not be too long. The thigh somewhat thin, with a slight tendency to crookedness, or being sickle-hammed behind. The tail thick at the upper part, but tapering below; and she should have a mellow hide, and but little coarse hair. Common consent has given to her large milk veins. The udder should rather incline to be large in proportion to the size of the animal, but not too large; its skin thin and free from lumps in every part of it; and teats of a moderate size."

The characteristics and the treatment of milch cows are worthy of the devoted study and attention of every farmer. Good ones yield more profit with less trouble than almost any other branch of farming. Poor ones cost nearly as much to keep and return a far less net profit in proportion.

The premiums for milch cows, five years old and over, and three years and under five, were the same as those offered for short-horn cows of those ages, given above.

The entries in this division were as follows:—

No. 1.—Cow, "Fannie," 2 years old, owned by O. Farnsworth, Waltham.
2.—Cow, "White Belly," 6 years old, owned by John Brooks, Jr., Princeton.
3.—Cow, "Mary," 6 years old, owned by John Brooks, Jr., Princeton.
4.—Cow, "Buffalo," 14 years old, owned by Philip L. Osborn, South Danvers.
5.—Cow, "Polly," 8 years old, owned by John W. Hollis, Brighton.
6.—Cow "Fountain," 10 years old, owned by William Robinson, Jr., Barre.
7.—Cow, "Jessie," 8 years old, owned by William Robinson, Jr., Barre.

No. 8.—Cow, "Lady Washington," 6 years old, owned by William Robinson, Jr., Barre.
9.—Cow, "Nonsuch," 5 years old, owned by Asa G. Sheldon, Wilmington.
10.—Cow, "Lillie," 8 years old, owned by Asa G. Sheldon, Wilmington.
11.—Cow, "Daisie," 10 years old, owned by Samuel Ellsworth, Barre.
12.—Cow, "Fannie," 6 years old, owned by Wm. Eames, Worcester.
13.—Heifer, native, 2 years old, owned by Leonard Hoar, Lincoln.
14.—Heifer, "Susie," seven-eighths Ayrshire, 3 years old, owned by John Brooks, Jr., Princeton.
15.—Cow, "Lois," Devon grade, 4 years old, owned by Philip L. Osborn, South Danvers.
16.—Cow, "Flora," 4 years old, owned by Wm. Robinson, Jr., Barre.
17.—Cow, "Cleopatra," 3 years old, owned by William Robinson, Jr., Barre.
18.—Cow, "Daisie," 3 years old, owned by Wm Robinson, Jr., Barre.
19.—Cow, "Jennie," 3 years old, owned by Samuel Ellsworth, Barre.
20.—Cow, "Flora," 4 years old, owned by William Eames, Worcester.
21.—Cow, "Sukie," 4 years old, owned by Samuel Ellsworth, Barre.

The committee upon milch cows, five years old and over, submitted the following

REPORT:

The number of entries for the premiums of the society in this class was eleven, all of them as far as the committee could judge, very superior animals, as regarded their milking qualities.

No statements of the quality or quantity of the milk and butter produced were filed with the secretary, and we could not learn that any were required by the regulations of the society; an error which should be avoided in all future exhibitions. Some of the exhibitors gave such statements to the committee in writing, and from others we collected many facts in answer to our inquiries; a method altogether too loose in matters of so much importance in deciding the relative claims to premiums.

The committee, from all the facts they could collect, and after a very careful examination of the animals, made the following awards:—

The 1st premium to William Robinson, Jr., of Barre, for his fine cow "Jessie," $\frac{7}{8}$ Durham, $\frac{1}{8}$ native.

The 2d premium to Samuel Ellsworth, of Barre, for his large cow, $\frac{1}{2}$ Durham, $\frac{1}{2}$ native.

The 3d premium to William Eames, of Worcester, for his cow, Fanny, $\frac{3}{4}$ Devon and $\frac{1}{4}$ native.

Your committee think that the farmers of Massachusetts have not given sufficient attention to the production of milk, forming as it does a portion of the sustenance of almost every family in its simple form, and entering still more largely into general consumption in the form of butter and cheese, it takes rank at once as one of our leading agricultural productions; and it becomes a question of the highest importance to the farmer, how the largest production and the best quality can be obtained with the least expense in fodder. As a general rule, grass in the summer and hay in the winter, will form the principal food of our stock, and to what extent, and in what proportion, we may substitute for these grain or roots, so as to obtain the largest relative returns, is a question by no means decided by actual experiment—and the farmers who shall settle this question by a series of such experiments carefully conducted, will make a large addition to the profits of agriculture in Massachusetts.

Your committee found a great difference of opinion in regard to the value of the different breeds of cattle for the dairy; and they would suggest, whether this may not be owing in no small degree to the great variety of pasturage found in the different portions of the State. Cannot the State agricultural society, by a careful collection of facts and results upon these and similar subjects, do much to reduce agriculture to a more exact science, and thus enable the young farmer to enjoy the benefit of the larger experience of those, who for a series of years by careful, well-conducted experiments, have sought out the most approved methods of agriculture.

For the committee,

William Mixter, *Chairman.*

Boston, July 21, 1857.

The committee on milch cows, under five years old, submitted the following

REPORT:

The committee on milch cows, under five years old, award the first premium to Warren Ordway, of Bradford.

Second premium to William Robinson, Jr., of Barre, for his cow, "Flora."

Third premium to Samuel Ellsworth, of Barre.

The report of a committee, to be of value, should be made up of facts. Opinions and speculations, vague and uncertain as they generally are, convey no information and are often detrimental to the cause which they attempt to defend. We shall therefore advance no theories, nor attempt to draw inferences, but confine ourselves to a brief statement descriptive of the prize animals in this class.

It is a fact worthy of note that the number of young cows entered, was small. Scattered all over the Commonwealth are very many superior cows, and is it not a matter worth consideration, whether some method cannot be devised to bring them out at a State exhibition, even if their owners cannot be persuaded to exhibit them at the County shows?

As it is supposed by many, that some breeds of cattle are very much superior to others for dairy purposes, and that these superior breeds are all foreigners, and in order to be superior must have a long family record, we will give such facts as we could ascertain respecting the pedigree of the cow to which we have awarded the first prize.

Her dam and grand-dam, both very superior cows, were kept until they faltered by reason of old age. The grand-dam was calved before pedigrees were in vogue, but her ancestors on both sides and for many generations, probably lived and died in this State. Her dam was sired by a bull, supposed to have a fraction of short-horn blood in his composition. She herself was got by a red bull, which might or might not have had a mixture of Devon blood. Her color is red, but she has no other Devon characteristic. In fact it is of a less florid shade than the North Devon, and approaches more nearly to the color of the Sussex cattle. She was three years old last spring, and dropped her second calf the 9th day of June, last, and her record of milk commences the 15th. Butter has not ordinarily been made from the milk; but the little which has been churned commends its quality. She fed in a good pasture during the thirteen weeks of which an account is given, and had very little beside—not the equivalent of one quart of meal per day. Her condition abundantly evidenced this fact.

With a thin chap and rather long face, horns not large and not purely white; ewe-necked; skin yellow, thin and delicate to the touch; narrow in the breast and hollow at the back of the shoulder; ribs wide apart and flat-sided, rather than barrel-shaped; a large belly, broad hips and thin thighs, in every part the opposite of compactness in form; large, crooked, sub-cutaneous veins extending well forward; an escutcheon of high order, and a capacious, fleshless udder, looking as if it was made on purpose to contain milk, — she was, to the unpracticed eye, a homely, lean, ill-looking beast, to be passed without notice other than wonder that she should have been sent to the show. Yet, although she was not above ordinary medium size and without beauty of form, without fat, and without valuable blood except that which made her old grand-dam valuable, she was by far the best cow on exhibition in this class. The connoisseur of milking stock would have marked her in a crowd, and her record below would have justified his expectations.

The other two premium cows, were grade Durhams. The statement of Mr. Robinson is annexed. His cow in form, size, and general features showed that she was what he represented her to be. Both were of course much larger and much better for the grazier than Mr. Ordway's cow, and in sections where milk is of secondary importance to beef, would be the most valuable animals. But where the contrary is the case as in Massachusetts, they have no particular title to commendation. They were awarded the prizes because they were very good cows, and in the opinion of the committee better entitled to them than their competitors. To say, however, that they were *very superior* animals in their class, would be more than their appearance and promise can justify.

Submitted for the committee,

T. E. Payson, *Chairman.*

Account of Milk for thirteen weeks, of three years old Heifer, owned by Warren Ordway, of Bradford, Mass., commencing June 15, 1857.

June 15, 37 lbs.
16, 33
17, 34
18, 35
19, 41
20, 39
21, 35—254
June 22, 40 lbs.
23, 41
24, 41
25, 43
26, 42
27, 42
28, 40—289
June 29, 41 lbs.
30, 42
July 1, 41
2, 40
3, 42
4, 40
5, 42—288
July 6, 42 lbs.
7, 42

July 8, 42 lbs.
9, 42
10, 42
11, 44
12, 41—295
July 13, 40 lbs.
14, 40
15, 40
16, 39
17, 40
18, 39
19, 37—275
July 20, 35 lbs.
21, 36
22, 35
23, 35
24, 37
25, 37
26, 36—251
July 27, 33 lbs.
28, 33
29, 33
30, 35

July 31, 33 lbs.
Aug. 1, 31
2, 31—229
Aug. 3, 31
4, 32
5, 33
6, 34
7, 34
8, 35
9, 35—234
Aug. 10, 33 lbs.
11, 33
12, 33
13, 32
14, 32
15, 32
16, 32—227
Aug. 17, 32 lbs.
18, 32
19, 32
20, 32
21, 31
22, 31

Aug. 23, 31—221
Aug. 24, 32 lbs.
25, 33
26, 33
27, 33
28, 33
29, 33
30, 30—227
Aug. 31, 30 lbs.
Sept. 1, 29
2, 29
3, 29
4, 28
5, 29
6, 29—203
Sept. 7, 29 lbs.
8, 29
9, 29
10, 28
11, 28
12, 28
13, 29—200

Week	ending	June	21, ...	254	Week	ending	Aug.	16, ...	227
"	"	"	28, ...	289	"	"	"	23, ...	221
"	"	July	5, ...	288	"	"	"	30, ...	227
"	"	"	12, ...	295	"	"	Sept.	6, ...	203
"	"	"	19, ...	275	"	"	"	13, ...	200
"	"	"	26, ...	251					
"	"	Aug.	2, ...	229	Whole amount, ...				3,193
"	"	"	9, ...	234					

Milk measure, $319\frac{4}{10}$ gallons; per day, 14 quarts.
Lawful measure, $399\frac{1}{2}$ gallons; per day, $17\frac{1}{2}$ quarts.

The following statement was made by William Robinson, Jr. of Barre:—

The cow, Flora, which I present for premium, at the State Fair, Class 1, No. 7, bred by Silas Bemis, Jr., of Barre, was calved in May, 1853, sired by Duke; dam, native; has had three calves; had her last in April, and sold to raise; is to calve again in March, by The Count; her next calf sold to raise, for $25, as soon as dropped. Her daily weight of milk for the ten first days of June, was as follows:—

	Pounds—Morning.	Pounds—Evening.	Total pounds.
June 1, ...	20	21	41
June 2, ...	$20\frac{3}{4}$	22	$42\frac{3}{4}$
June 3, ...	$20\frac{1}{2}$	$22\frac{1}{4}$	$42\frac{3}{4}$
June 4, ...	$20\frac{1}{4}$	$21\frac{1}{2}$	$41\frac{3}{4}$
June 5, ...	$20\frac{3}{8}$	21	$41\frac{3}{8}$
June 6, ...	22	$23\frac{1}{2}$	$45\frac{1}{2}$
June 7, ...	$21\frac{1}{4}$	$22\frac{1}{4}$	$43\frac{1}{2}$
June 8, ...	19	20	39
June 9, ...	$20\frac{3}{4}$	$21\frac{3}{4}$	$42\frac{1}{2}$
June 10, ...	$21\frac{3}{4}$	23	$44\frac{3}{4}$
Total, ...			$424\frac{7}{8}$

Five pounds two ounces of butter were made from the milk of the 8th, 9th, and 10th days of June; 21 lbs. of milk makes a pound of butter. Remainder of the season manufactured with the milk of the others.

WORKING OXEN.

As already observed, the working oxen of New England are deservedly renowned for their activity, strength, docility and training. In these respects they are, perhaps, unsurpassed by any in the world. Sprung as they have from the greatest variety of sources, with a strain of blood from the old yellow Denmarks, another from the early importations of the colonists from the mother country, another from the black Spanish cattle, traces of which remain to this day, another from the imported and valuable long-horns, and the importations of short-horns, which have been frequent within the last forty years, and others still from the Devons, unrivalled among the pure bloods, for working cattle, they are eminently adapted in many respects to the climate and the wants of our farmers. This high character of our working cattle is due to a variety of circumstances, one of the most important of which is, perhaps, the fact that the use of oxen instead of horses on the small and often hard farms of New England, has led us to rely almost exclusively upon them, and made it necessary to train them.

A celebrated agriculturist and breeder, of Pennsylvania, John Hare Powell, once said: "I should ascribe the extraordinary performance of New England cattle to the skill, sagacity, singular steadiness, and peculiar firmness of the men—to care in selection, and to the face of the country in which they are bred." Mr. Powell, who was well known in his day as a man of large practical experience and extensive and careful observation on these points, gave his opinion with regard to the comparative merits of the working cattle of old and New England as follows:—

"Have any instances been brought wherein it appears that, in activity, patience or strength, they have in Great Britain, surpassed the oxen of Massachusetts or New York? I have never seen in Europe performance of oxen comparable to that, which in Massachusetts would scarcely be remarked."

This high encomium is probably very just, since it is confirmed by the testimony of many intelligent Englishmen who have witnessed the splendid performances of our cattle. On a recent visit to Kentucky and some of the western States, I had occasion, in one or two instances, to serve on committees on working cattle, and consequently had every opportunity to observe them with particular care. In point of form, symmetry and development, many of them would compare favorably with the best cattle in this State, but in point of intelligence and training I did not see a yoke that would not have been ruled off the ground at a New England cattle show. The drivers, in nearly every case, used a line or rope attached to the horn of the near ox, one end of which he held in his hand, and could not drive without. The idea of ploughing with a yoke of oxen without a driver was a thing which seemed never to have been heard of. It is well known that no cattle among us would be considered "broken" or trained, which, after the age of four or five years, would not plough without a driver equally well, or even better, than with one.

But in one respect our working oxen would be improved by a cross of our native cows and a pure bred Hereford or Devon bull, and that is, the greater ease with which they would be matched. Half-bloods of either of these races make very beautiful and valuable cattle, improved in shape and fineness of bone and uniformity of appearance. Such cattle are often to be met with, and always excite the admiration of the beholder. They are quick, good workers, and when no longer wanted for the yoke, feed well and make beef of an excellent quality, well laid on the most valuable parts. We want cattle that possess such qualities, good workers and good feeders when the time comes to prepare them for the butcher.

The premiums offered for working oxen, at the State Fair, were as follows:—

Four years old and upwards—1st premium, $50; 2d, $40; 3d, $30; 4th, $20; 5th, $10.

Two years old and under four—1st premium, $30; 2nd, $20; 3d, $15; 4th, $10; 5th, $5.

The list of entries in this division was as follows:—

No. 1.—Steers, grade, 6 months old, owned by George Babcock, Brookline.
2.—Oxen, 6 years old, owned by Wm. Thompson, North Bridgewater.
3.—Oxen, 4 years old, owned by Nathan Brooks, Acton.
4.—Oxen, 5 years old, weight, 3,270 lbs., owned by Nathan Brooks, Acton.
5.—Oxen, native, 7 years old, owned by Leonard Hoar, Lincoln.

No. 6.—Oxen, grade Ayrshire, 6 years old, weight, 3,570 lbs., owned by Isaac Osgood, Newton Lower Falls.

7.—Oxen, native, 5 years old, owned by Rufus King, Sutton.

8.—Steers, native, 3 years old, owned by Rufus King, Sutton.

9.—Oxen, 4 years old, weight, 2,340 lbs., owned by Calvin D. Nourse, Shrewsbury.

10.—Oxen, half Devon, 6 years old, owned by William Buckminster, Framingham.

11.—Oxen, grade Devon and native, 5 years old, weight, 3,200 lbs., owned by G. C. Sanborne, Westborough.

12.—Oxen, native, 6 years old, weight, 3,600 lbs., owned by Anson Warren, Westborough.

13.—Oxen, grade Devon, 4 years old, weighed 2,850 lbs., owned by Nathan B. Reed, Princeton.

14.—Oxen, one pair, 7 years old, weighed 3,930 lbs., owned by John B. Moore, Concord.

15.—Oxen, one pair, 4 years old, owned by Horace Sheldon, Wilmington.

16.—Steers, one pair, 1 year old, weighed 2,060 lbs., owned by Henry Johnson, Millbury.

17.—Steers, one pair, 3 years old, weighed 3,350 lbs., owned by S. W. Buffum, Winchester, N. H.

18,—Steers, one pair, 1 year old, weighed 1,800 lbs., owned by S. W. Buffum, Winchester, N. H.

19.—Steers, one pair, 3 years old, owned by Nathaniel Dodge, Sutton.

20.—Oxen, one pair, 4 years old, owned by Nathaniel Dodge, Sutton.

21.—Oxen, one pair, 4 years old, owned by T. J. Pinkham, Chelmsford.

22.—Steers, one pair, 1 year old, owned by George B. Loring, Salem.

23.—Oxen, one pair, 4 years old, owned by L. Maynard, Bradford.

The committee on working oxen and steers, consisting of Harvey Dodge, of Sutton; Aaron D. Weld, of Roxbury; Asa G. Sheldon, of Wilmington; I. Osgood Loring, of North Andover, and P. P. Severance, of Greenfield, made the following

REPORT:

At an early hour on Tuesday, the first day of the exhibition, your committee, as above, all reported themselves as ready and anxious to serve, to the best of their ability, in testing the qualities of 23 yoke of oxen and steers which had been duly entered for their inspection. No individual member of this committee ever intimated that he wished to be released from working on this committee, as is too often the case, but each and every one of them seemed willing and anxious to devote their time patiently and earnestly to the work, which lasted nearly two days, in examining the oxen in the ring, on the cart and in the pens. And it gives me much pleasure to be able to state, that in no instance was the chairman called upon for his opinion in making up the awards; in short, they were unanimous in every instance in the awards, except in that to Nathaniel Dodge, of Sutton, who offered a pair of three year old steers for the $30 premium, and in this your chairman interfered and recommended, for want of competition, only $15 be given to him, and the value of $15 to another and unfortunately an unsuccessful competitor in working oxen, which request was most cheerfully complied with. And the awards were as follows, viz.:—

The first premium to John B. Moore, of Concord, for his twin 7 years old oxen, weighing 3,930 lbs., $50; to Nathan B. Reed, of Princeton, for his 4 years old grade Devon oxen, weighing 2,700 lbs., the second premium of $40; the third premium of $30, to Nathaniel Dodge, of Sutton, for his 4 years old cattle, high grade Devon, weighing 2,650 lbs.; the fourth premium of $20, to Horace Sheldon, of Wilmington, for his 4 years old oxen, weighing, 2,870 lbs.; to L. Maynard, of Bradford, the fifth premium of $10, for his 4 years old twin cattle, weighing 3,000 lbs.

In the second class of our department, we find offered for two year olds and under four, five premiums; and no entry of any cattle under this class was offered, except a yoke of three year old steers, by Nathaniel Dodge, of Sutton, which were truly good steers, and perhaps worthy of the first premium; but for want of competition, your committee award Mr. Dodge $15, and strongly recommend the balance of $15 to G. C. Sanborn, of Westborough, for his five years old oxen, weighing 3,200 lbs.; and your committee regret exceedingly that they had not a larger and more worthy premium to bestow on these cattle as well as their driver, who came near being perfect. Next your committee recommend a premium of $10 to Rufus King of Sutton, for his native 5 years old oxen.

They also recommend to T. J. Pinkham, of Chelmsford, for his 4 years old oxen; to William Buckminster, Esq., of Framingham, for his twin 6 years old cattle, Devon and native; to Leonard Hoar, of Lincoln, for his beautiful 4 years old oxen, weighing 3,245 lbs.; to Calvin D. Nourse, of Shrewsbury, for his oxen, 4 years old; also, to Anson Warren, of Westborough, for his 6 years old oxen, weighing 3,600 lbs.; a gratuity of ten dollars each or a diploma, believing as we do that they fully merit the award. We also notice with much pleasure, a pair of beautiful deep red steers, one year old, weighing more than a ton, belonging to Dr. George B. Loring, of Salem; as we have no special premium at our disposal, on steers under two years old, your committee would most respectfully recommend a diploma, or a discretionary award in money, as the Board in their wisdom may think best.

Henry Johnson, of Millbury, also presented a pair of yearling steers, weighing 2,060 lbs., well matched and broken to the yoke, and your committee recommend a gratuity to him, as Dr. Loring and Mr. Johnson are certainly entitled to the thanks of the Board for the sacrifice they have made in bringing up for our inspection, and so creditable to themselves, two pairs of most superior steers.

S. W. Buffum, of Winchester, N. H., offered for our inspection a pair of 3 year olds, weighing 3,350 lbs., and a pair of yearlings weighing 1,800 lbs., remarkable for nothing more than their weight; yet your committee would recommend a small gratuity on the three year olds, but nothing on the yearlings.

Last but not least, your committee was requested to take note of a single 5 years old bull, belonging to Howard Ford, of Roxbury. This bull was first tested in a horse-cart, with a load of about 4,000 lbs., and his owner performed more evolutions in drawing, backing, and in hawing around and geeing around, and in going straight forward, to say nothing of his snow-shoeing and riding on the back, than any competitor on the ground. The most of your committee still believe that premiums, even at this advanced stage of the Fair, should be offered on working bulls, single, in harness or in yoke, as best may suit the estate or convenience of the competitor. We know of no team so cheap as the bull. He can handle the cart, provoke the soil with the plough or harrow, mow or rake with the new and useful machines for that purpose, and still be all the surer as a stock-getter of his kind.

It is said in the early history of the Massachusetts, that a Mr. Blackstone, for whom the town of that name was christened, "keped a big bull, and besede the entire evolutions of the farm, rode him to mill a distance of nearly a dozen miles to the head of NarowGansett Bay, as well as to meeting on Sundays." Now Mr. Blackstone was a good farmer, and left a name and substance that but few can do in these later times; and the image of this bull may at this day be seen serving as a weather-vane, on a public building in that goodly town, as a perpetual monument to his own and his master's worth.

Leaving the above suggestions on working bulls to the wisdom and fidelity of the Massachussetts Board of Agriculture, your committee, composed as they are from several of the counties of the State, and being appointed especially to judge the stock in their department upon their merits for a specific purpose, viz., working oxen, found no small difficulty in making their awards to suit the different competitors.

The competitors from Worcester County have always, and do still insist, that to be experts in backing insures them of the prize. Whilst the competitors from Berkshire, Hampshire and Hampden counties see very little use in backing a load either crooked or straight, but they seem to have a handy way, and possess a peculiarity of physical development of their cattle, and the nearer they are fitted for the shambles the more deserving of the prize. This is their idea of cattle, but in Essex and Middlesex, the criterion is good form and size, fit either for the yoke or the shambles, work well on the cart or plough, easily fitted for the butcher, and in Suffolk and Norfolk, oxen must not only work well but look well, draw all that can be put on, and back the same gracefully and easily, and be really good workers; never go to the shambles until they go from the yoke; or in other words, always fit for the yoke, the stall, or the shambles. I think we can safely say that we had all these troubles to contend with amongst the competitors for the premiums offered by the generosity of your Board, and it is hardly to be expected that among so many and so good cattle, all of their owners would be fully satisfied with our awards, as most of these cattle had taken first prizes at their respective County shows, and consequently they expected it at the State, and certainly would have obtained it had there not been better ones offered. Your committee believe that no team for the farm generally, in Massachusetts, is so cheap, so useful, and so profitable as the ox.

Good blooded, well built, well broken, well driven oxen will perform as much real labor on our farms as horses or mules, and their only feed generally is grass and hay, and their only harness simply a wooden yoke, and in case of any accident he may go to the shambles, whilst the horse requires grain, expensive harness, and is a complete loss at last to the owner. There may be exceptions to this, it is true, but certainly it will hold good in most instances, that the ox always will be preferred here on our Massachusetts soils. He should be broken to the yoke young, and always be treated with kindness under all circumstances. A merciful man is merciful to his beast: yet in our judgment it would richly pay to inscribe these words on the yoke if not the horn, of each ox, so that it should always be visible.

Respectfully submitted,

HARVEY DODGE, *Chairman.*

SUTTON, October 21, 1857.

FAT CATTLE.

The attention of farmers in Massachusetts, especially in the eastern section, is devoted so little to feeding and the production of beef, that it was not to be expected that the entries in this division would be large. The premiums offered were as follows:—

Fat Bullock—1st premium, $30; 2d, $20; 3d, $10.
Fat Cow—1st premium, $20; 2d, $10; 3d, $5.

The following is the list of entries of fat cattle:—

No. 1.—Oxen, 6 years old, 3,700 lbs., owned by George Babcock, Brookline.
2.—Ox, grade Durham, 5 years old, weighed 2,800 lbs., owned by Thomas J. Field, Northfield.
3.—Ox, 5 years old, weighed 1,960 lbs., owned by Samuel Ellsworth, Barre.
4.—Oxen, one pair, 8 years old, weighed 3,465 lbs., owned by Reuben Thompson, Plympton.
5.—Ox, one, 5 years old, weighed 2,400 lbs., owned by Hezekiah Taylor, Westfield.
6.—Ox, one, 5 years old, weighed 2,400 lbs., owned by Hezekiah Taylor, Westfield.

The Committee made the following awards:—

The first premium, to H. Taylor, of Westfield, for his ox, 5 years old, weight, 2,400 lbs.

Second premium, to Thomas J. Field, of Northfield, for his grade short-horn steer, 5 years old.

Third premium, to H. Taylor, for his ox, 5 years old, weight, 2,400 lbs.

They can also recommend a gratuity of five dollars to Reuben Thompson, of Plympton, for his pair of fat oxen, weight, 3,465 lbs., and another of ten dollars to Samuel Ellsworth, of Barre, for his fat ox, 4 years old.

DAVID MOSELEY, *Chairman.*

CALVES.

The following premiums were offered:—

For the best pen of calves, not less than five in number, raised by the exhibitor—1st premium, $25; 2d, $15.

The following is the list of entries in this division:—

No. 1.—Calves, a pen of ten, owned by John Brooks, Jr., Princeton.
2.—Calves, a pen of eight, owned by Harvey Dodge, Sutton.
3.—Calves, a pen of five, Devons, owned by William Buckminster, Framingham.
4.—Calf, bull, 5 months old, Jersey, weighed 390 lbs., owned by G. T. Thatcher, Dorchester.
5.—Calf, heifer, 8 months old, weight 640 lbs., grade, owned by S. R. Burroughs, Warren.
6.—Calves, a pen of six, owned by Nathaniel Dodge, Sutton.

The committee on this division submitted the following

REPORT:

The whole number of entries was six, viz.:—

John Brooks, Jr., of Princeton, entered five, three seven months old, and two nine weeks old.

Harvey Dodge, of Sutton, entered eight, from four to seven months old.

William Buckminster, of Framingham, entered five, ages not given.

G. T. Thatcher, of Dorchester, entered one Jersey bull calf, five months old.

S. R. Burroughs, of Warren, entered a heifer calf, eight months old.

Nathaniel Dodge, of Sutton, entered six calves, from five to seven months old.

The quality of the calves was generally very good. The committee took into consideration as far as possible the value of each animal; the care with which they were bred; the manner in which they had been reared, estimating the expense, care, &c. The provisions of the board rendered it necessary that they should take a general survey of the whole number contained in a pen, and on this account it was impossible to take any individual animal of a superior character as a type of a drove. In awarding the premiums therefore they pass judgment on no single animal, but upon the class in which he might be found. With these views they award,

The first premium of $25, to Nathaniel Dodge, of Sutton.

The second premium, of $15, to Harvey Dodge, of Sutton.

And they would recommend a gratuity of $12, to John Brooks, Jr., of Princeton.

The calves of the Messrs. Dodge, were Devons, and there were among them some very superior specimens of that breed of cattle. A bull calf, in Mr. Harvey Dodge's pen, was the most promising animal of the kind we have ever seen. The calves, entered by Mr. Brooks, of Princeton, were grade Ayrshires, of the McGregor stock. Three heifers in this drove. six months old, gave evidence of careful breeding, and had every mark of good milkers. Their size was good, and their whole appearance that of hardy and thrifty animals. The pen, furnished by Mr. Buckminster, showed some fine specimens of Devon stock, bred with the care for which that gentleman is distinguished; but being of the same breed and at the same time inferior in appearance to those of the Messrs. Dodge, although valuable animals in themselves, the committee regret that they can do no more than recommend them to breeders of Devon cattle.

The heifer calf of Mr. Burroughs, and the Alderney bull calf of Mr. Thatcher, did not come under the regulations furnished to the committee, who were however gratified to witness such evidences of care and taste on the part of the owners.

For the committee,
GEORGE B. LORING, *Chairman.*

According to the arrangement of the schedule of premiums, class first included all neat stock in ten divisions, and class second all *horses*, beginning with the

THOROUGH-BRED.

We have seen that the native cattle of New England had no common origin, but were derived from the union of a great variety of stock and blood intermingling in endless crosses, without any regard to fixed principles of breeding. The same is true with our "native" horses, which, for the most part, form no distinct breed, but owe their origin to sources equally various, to the English, the French, the Spanish, the Flemish and the Danish horses, which were imported at different times by the early settlers, as most suited the convenience of each. The only race that can claim exemption from this general rule is the through-bred which traces its origin to the hot blood of the deserts, to the Arabian, the barb, and the Turk.

In some sections, it is true, the identity of some of the races which formed the original stock, is distinctly traced in the form and characteristics of some of our horses, but in others it is entirely obliterated, no regular pedigrees having been kept, no regular system of breeding having been adopted; the general practice having been, from time immemorial, particularly in the early history of the agriculture of Massachusetts, to secure the service of the nearest and cheapest stallion, and to breed from him.

Yet notwithstanding this want of a common and reputed origin of the great majority of our horses, they possess, on the whole, such excellence in many respects, as to justify the encomium of the author of the "*Horse and Horsemanship of America*," when he says that, "for docility, temper, soundness of constitution, endurance of fatigue, hardiness, sure-footedness and speed, the American roadster is not excelled, if equalled, by any horse in the known world not purely thorough-bred." It may well be doubted whether in many of these essential qualities he is equalled even by the thorough-bred of the present day, while for the practical purposes of life among us, it is evident that the well-trained New England roadster is unsurpassed, and he bears this reputation abroad as well as at home.

The pure thorough-bred has been kept for the race course, and for that specific purpose is unrivalled for speed and endurance, surpassing even the swiftest coursers of the desert, which he has always beaten when fairly matched, even on their own ground. The perfection to which he has been brought by long-continued and most careful breeding for a particular object, shows what can be done by way of building up a breed of animals, adapted eminently to the end in view.

The importation of thorough-bred horses into this country began at an early date, and was continued with great public spirit long before the revolution,—confined, however, mainly to the southern States, particularly to Maryland, Virginia and South Carolina. Many of the most celebrated racers on the English turf thus found their way to American stables, and have exerted a powerful and very perceptible influence on the horses of the southern States, and to some extent, on the horses of all parts of the country.

The earlier race horses were smaller and more compact than those of the present day. Greater distances were required of them, and consequently greater endurance. It is thought by many that an irreparable injury has been done to the race in modern times, that is, within the past fifty or seventy-five years, by requiring the greatest possible speed and shorter distances. The structure of the animal has been greatly changed in consequence. The modern custom of training him for the course at too young an age, has also led to the same result, and many a horse has been compelled to leave the track broken down and unfit for service before arriving at an age at which the racer of the last century would have been allowed to compete.

The height of the modern thorough-bred racer is usually from fifteen to sixteen hands, a middling size being preferred to one above the usual height; his body is light, his limbs rather longer than in other horses, muscular to the knee and hock, chest narrow but deep—a form which best promotes the power of speed—his shoulders finely formed, oblique, often lower than suits the eye; the back long, not ribbed up like the snug built roadster; the croup long; length and breadth of the hind quarters large; the muscular development of the back and hind quarters surpassing that of any other breed. The head is fine, usually small or tapering towards the muzzle, forehead broad, eyes large and brilliant, ears delicate, of medium length, lips thin, nostrils wide, the veins under the skin prominent, more so than in other races; the neck long, straight and thin; the legs below the knees thin and flat; the pasterns long and oblique, and the hoof well formed.

It will be seen that the whole structure of the body is light, and calculated to serve the purposes of rapid motion. Speed and strength of endurance are the chief requisites in the thorough-bred horses, and perhaps other qualities have been sacrificed to them. The color of the pure bred racer is usually bright bay or chestnut, with black mane and tail. Eclipse was a rich chestnut. A few have been jet black, but they are rare. A few are gray, but this color is not common.

If the above enumeration of the prominent points of the thorough-bred horse be correct, it is evident that his mechanical structure is different from that most frequently sought for, and most highly prized in New England. His natural pace is that of running, and not that of trotting. But Low, the author of several valuable works on our domestic animals, says: "Foreign nations are desirous to obtain the race horse of England for improving the native breeds, and to this end these noble horses are eminently suited." In England, a grade thorough-bred of half or three-quarters blood is used as a hunter, the latter horse not forming a distinct breed, but only a mixture of the thorough-bred with a horse of less blood. In Massachusetts, the thorough-bred of the last century laid the foundation of one of our invaluable varieties of horses, the Morgan, as I think it must be regarded as well settled, that the original old "Justin Morgan," was sired by a horse either pure thorough-bred, or possessing a large share of blood. But as the thorough-bred of the last century was a very different animal from that of the present time, being, in general, much more compact, no very reliable conclusion can be drawn from that cross, as to the result of the cross of the thorough-bred horse now upon our excellent New England roadsters. Those who may be desirous of trying the experiment have ample opportunity of doing so.

In judging upon horses entered in this division, the pedigree is, of course, the most essential point, as without a satisfactory pedigree running back unbroken, on the side both of the sire and dam, to the blood of the barb, the Turk or the Arab, no horse can be proved to be thorough-bred, and therefore entitled to compete. Of the animals entered as thorough-breds, the pedigrees of only two, those of "Balrownie," and of "Sultan," have been placed in my hands.

The stallion "Balrownie" was by "Annandale" out of "Queen Mary." "Annandale" was by "Touchstone," (winner of the St. Leger, 1834,) out of "Rebecca," (dam of "Alice Hawthorn," one of the best mares ever on the English turf,) by "Lottery," dam by "Cervantes" out of "Anticipation," by "Beningborough," (winner of the St. Leger, 1794,) by "King Fergus," by "Eclipse," and "Eclipse" directly descended from the Darley Arabian, besides uniting in himself on the side of the dam the very best blood of the turf. Eclipse never met an opponent fleet enough to put his full power to the proof, for it was said that the fleetest could not keep by his side fifty yards together.

"Queen Mary," the dam of "Balrownie," (also dam of "Blink Bonny," winner of the Derby and Oaks, 1857,) by "Gladiator," dam by "Plenipotentiary," (one of the finest horses on the modern turf, winner of the Derby in 1834,) out of "Myrrha" by "Whalebone," (winner of the Derby in 1810,) by "Waxy," (winner of the Derby in 1793,) by "Pot8os," by "Eclipse."

"Balrownie" himself has run well at all distances, and was winner of the Doncaster stakes, the Pontefract gold cup, and the Caledonian St. Leger.

"Sultan" is a fine animal, and attracted the attention and admiration of all observers. The following statement of his pedigree has been placed in my hands:—

"He was sired by 'Norfolk,' out of 'Image,' (formerly 'Zena na,') by 'Sultan.' 'Norfolk' was sired by 'Sir Hercules,' (also the sire of 'Irish Birdcatcher,' 'Faugh-a-Ballagh,' and many other celebrities on the turf and in the stud at the present day,) and traces his lineage through him to 'Whalebone,' 'Waxy,' 'Pot8os,' and the great 'Eclipse.' 'Zenana' was on the turf in 1835–6, and is recorded as having won several races when her competitors were among the best. She was sired by 'Sultan,' who was by 'Selim'—'Buzzard.' 'Sultan' was the sire of 'Bay Middleton' and 'Glencoe'—the first the sire of some of the best stock in England, and the latter the most successful foal-getter ever imported into this country. 'Sultan's' pedigree, it will thus be seen, includes two of the richest and most fashionable strains of English blood.

"Sultan is a dark steel gray, sixteen hands one inch high, and weighs 1,125 lbs. He is a horse of immense bone and muscle, unexceptionable form, and elegant action. His lean, long head; high arched crest; broad, deep chest; rounded barrel, well ribbed up; great length from the hip to the hock; large hocks and firm knees; limbs perfect in shape and sound in every particular, and the whole machine bounding with the nervous elasticity of the English thorough-bred in high health and blooming condition, never fail to attract the attention of all beholders. 'Sultan' was never trained for the turf, but judging from his form, muscle and bone, together with the known stoutness and speed of all his ancestry and relations, on both the side of sire and dam, he cannot fail to impart the same high qualifications to his progeny."

"Crinoline" and "Colleen Dhas" appeared upon the course, the former winning the first half mile heat in one minute three seconds, and the second by a neck, in one minute one second.

The premiums offered for thorough-breds were as follows:—

Stallions, four years old and upwards—1st premium, $40; 2d, $30 3d, $20.

Mares, four years old and upwards—1st premium, $40; 2d, 30; 3d, $20.

Stallions and mares of less age—Discretionary.

The following are the entries of thorough-bred horses:—

No. 1.—Stallion, "Balrownie," 7 years old, 15 hands 3 inches high, owned by Quincey A. Shaw, Boston.

2.—Mare, "Comfort," 6 years old (in foal), 15 hands 2 inches high, owned by Quincey A. Shaw, Boston.

3.—Stallion, "Trustee, Jr.," 8 years old, 15 hands 2 inches high, weight, 1,000 lbs., and owned by J. J. Merrill & Co., Roxbury.

4.—Mare, "Crinoline," 6 years old, owned by S. Hammond, Boston.

5.—Mare, "Colleen Dhas," 6 years old, owned by S. Hammond, Boston,

6.—Stallion, "Sultan," owned by Phillips and Hammond, Brookline.

7.—Stallion, "Omar Pasha," pure Arabian, 8 years old, weight, 900 lbs. and owned by I. D. Bradley, Milton.

The committee on thorough-bred stallions and mares, presented the following

REPORT:

The committee appointed to report on "Thorough-bred Stallions and Mares," have attended to the duties assigned them, and respectfully submit the following:—

Your committee recommend that the first premium, of forty dollars, be awarded to thorough-bred stallion "Balrownie," owned by Mr. Quincey A. Shaw, of Boston.

Also, that the second premium of thirty dollars, be awarded to thorough-bred stallion "Sultan," owned by Messrs. Phillips and Hammond, of Brookline.

Also, that the third premium of twenty dollars be awarded to thorough-bred stallion "Trustee, Jr.," owned by J. J. Merrill & Co., of Roxbury.

The committee desire also to make honorable mention of stallion Omar Pasha, but as no authentic pedigree was furnished, the horse was not considered in competition for premium.

Mares.—The committee recommend that the first premium, of forty dollars, be awarded to thorough-bred mare, "Comfort," owned by Mr. Quincey A. Shaw, of Boston.

The committee have also examined, with much gratification, two imported mares, one named "Crinoline," the other "Colleen Dhas." They are well-bred and valuable animals, and were entitled to premiums; but as no pedigrees were produced, the awards could not be made. We however recommend that a gratuity be awarded to each of them.

Your committee are satisfied that the importation of valuable thorough-bred horses into this country, is calculated to be of immense benefit; and those enterprising gentlemen who are engaged in this very desirable task of improvement, are entitled to the thanks and patronage of the whole community.

Respectfully submitted,

GEORGE H. DADD.
E. F. THAYER.
R. S. DENNY.
JOHN SMITH.

ROADSTERS.

The term roadster, as used at most agricultural fairs, is not very strictly defined. It implies a union of qualities—such as speed, style of action, and endurance, which adapt the animal especially to light carriages on the road. The terms "family horse," or a "horse for general utility," or a "horse of all work," though implying different qualities in some respects, are not unfrequently used as nearly synonymous with it, or rather the distinction between these several classes is not very clearly marked. Most of our horses are kept for a great variety of purposes. They are used on the road, in omnibuses, hacks and lighter carriages, for draught in trucks, and at the plough, and sometimes under the saddle. It is often the case that the same horse is put, at different times, to all these purposes, and many of our horses certainly prove themselves equal to any duty which can reasonably be required of them. A horse for general utility is a roadster, and the fact of his weighing under or over one thousand pounds does not prevent him from being used as such. The divisions adopted in the schedule of premiums were regarded merely from the point of convenience of classification, horses weighing less than one thousand pounds being entered as roadsters, and horses weighing over that, as horses for general utility. But though a horse for general utility must be a roadster, a good roadster is not necessarily a good horse for general utility. If he is compact, and possessing strength and endurance, he may be well adapted for general purposes, though deficient in weight. Many small horses unite "as much goodness and strength as possible in a little space."

A good roadster may have great power and endurance, but his style, action, or mode of going are important, much more so than in the horse for general utility. "In harness," says the intelligent writer on the Morgan horse, "when the reins are up, and he is told to go, (he should not start before,) he should raise his head a little above its position when at rest, keep it there steadily and quietly, and move off nimbly, with a light but steady and yielding pressure upon the bit. His feet should be raised only enough to clear the ordinary inequalities of the ground, carried well forward in straight lines, swinging neither out nor in, and be set down evenly, so that the entire sole comes upon the ground at the same time. If the heel is set down first, it is liable to injury from the tenderness of the parts; and if the toe is set down first, the horse will almost always prove a stumbler. The forelegs should bend well at the knee, instead of the legs being raised principally by the movement of the shoulder joints and the leg carried stifly forward, causing an unsteadiness of motion and a sort of rolling from side to side. The hind legs should take up light and quick, be carried well forward under the body, and should have a peculiar, nervous, springy 'pick-up,' but without any hitching or twitching of the muscles of the haunches. The step should not be long, and yet it may be too short; observation can alone determine when this is right."

The good roadster moves off lightly and easily without urging, and if necessary will keep up his speed hour after hour without flagging. His favorite pace is the trot, and in this he excels all other horses. Low, in his history of Domestic Animals, says of the people of this country: "They prefer the trot to the paces more admired in the old continent, and having directed attention to the conformation which consists with this character, the fastest trotting horses in the world are to be found in the United States." Among the changes which have been effected in our horses within the last half century, none is more marked than the increase of speed. Fast trotting was scarcely known at the time of the old Justin Morgan, nor was the speed of the horse considered of special money value till the invention of the modern light buggy and the improvement of roads. This quality has now become, to a great extent, essential to the comfort and convenience of nearly all classes of society, and has its money value accordingly. The wants of the community have changed even within the last few years, especially since railroad travel has become so universal. Men accustomed to a speed of from twenty to thirty miles an hour in the cars, cannot easily content themselves with the old and common gait of five or six miles an hour, and the majority of people now want a horse to go off easily at the rate of eight, ten, or even twelve miles an hour, and the horses that do it are now very common, whereas formerly they were only the exception to the general rate of speed. A demand very soon creates a supply and the farmer who breeds horses knows his own interest well enough to study the tastes of the community, and to breed accordingly. In point of speed, therefore, there can be no question, that a very great increase has been attained by careful breeding, particularly within the last twenty years. But speed is only one of many qualities which are essential to a good roadster, and no agricultural society would accomplish its object by encouraging that, to the extent of practically overlooking others equally essential. It was, therefore, strongly urged upon the judges of horses in this division, at the State Fair, to have special reference to general good qualities, such as style, action, size, temper, form, constitution, and enduring properties, as well as the speed of the animals.

With the exception of an increase of speed, it may well be doubted whether there has been any real improvement in our horses within the last twenty years. More care and pains are taken in keeping and training them, perhaps, and undoubtedly a larger number of good horses are found now; but for docility, power and strength of endurance and general good qualities, it is not probable that any great improvement has been effected. The aggregate money value has been greatly increased, because the number of fast horses has increased and speed will command its value; but the tendency has been to congregate the best horses in cities and to draw them from the country. Few farmers want to keep a horse for farm and family purposes, that will bring from two or three to five hundred dollars.

Two distinct varieties of horses are now, and have, for the last few years, been favorites for the road. Neither of these can have any pretensions to the claim of being a distinct breed or family, while either offers an admirable foundation for the skill of the breeder. And yet the peculiarities of each are generally so well marked as not to deceive the practised eye. Of these varieties, the Morgan has already been incidentally alluded to, as deriving its name from the owner of the first, or "Justin Morgan," foaled in West Springfield, Mass., in 1793. The sire of this remarkable stallion, "True Briton," was probably at least half thorough-bred, and he is said by some to have been pure bred. "Justin Morgan" soon went to Vermont, and there laid the foundation of the Morgans of that State, producing "Bulrush," "Woodbury," and "Sherman," all of which added vastly to the wealth of the breeders and farmers of that section. The descendants of these horses have been spread far and wide. The "Justin Morgan" was a small horse, about fourteen hands high, and weighing only about nine hundred and fifty pounds. He and his three most noted sons were put to larger mares, and the "Morgan" of the present day is of somewhat larger size, but varies from nine hundred and fifty to ten hundred and fifty, sometimes rising to eleven hundred pounds. The "Morgan" is celebrated for compactness of form, strength and power of endurance, and soundness of constitution. He is consequently much sought after for stages, omnibuses and carriages. "Petersham Morgan" is an admirable representative of the form and style of the Morgan horse.

The other prominent variety among us is the "Black Hawk." The Black Hawks derive their name from a stallion celebrated for transmitting his qualities to his offspring, as well as for his great speed as a trotter. "Black Hawk" was foaled in 1833. It is asserted by some that he was sired by the "Sherman Morgan," which would make him grandson of the old "Justin Morgan;" and by others, that he was sired by a French teazer kept in the same stable with "Sherman Morgan." His dam was bred in New Brunswick, and is said to have been half thorough-bred, a black mare of very remarkable speed as a trotter. At four years old "Black Hawk" was bought by Mr. Benjamin Thurston, of Lowell, and kept as a family horse till 1844, when he was purchased by David Hill, Esq., of Bridport, Vt., and kept as a breeder till the time of his death in 1856, at the age of 23. In size he was little less than fifteen hands, and weighed not far from one thousand pounds. The Black Hawks are easily distinguished from the Morgans. They are generally lighter behind. As roadsters, they are often very excellent, possessing a high and nervous style of action, an elastic step, and a symmetrical and muscular form. Of these horses, "Trotting Childers" is an excellent specimen. He was drawn from life by an accomplished artist, who has succeeded in portraying his fine and symmetrical proportions. He is seven years old—sired by old "Black Hawk," dam "Lady Forest," commonly known as the "Maynard Mare." She was noted for remarkable speed. "Trotting Childers" is fifteen and a half hands high, and possesses great beauty of form and style and grace of action. He has won many prizes.

No rules were laid down for the guidance of the judges in this division, except that already named, with regard to taking into consideration the general good qualities of the animals, and that in testing the speed of horses, each animal, four years old and over, was to go in carriage, to weigh, including the driver, not less than 350 pounds.

As might have been anticipated, the competition in all the subdivisions of roadsters was very great. The premiums offered for stallions under 1,000 lbs., entered as roadsters, were as follows:—

Stallions, four years old and upwards—1st premium, $40; 2d, $30; 3d, $20.

Stallions, three years old and under four—1st premium, $30; 2d, $20; 3d, $10.

Stallions, two years old and under three—1st premium, $20; 2d, $15; 3d, $10.

Stallions, one year old and under two—1st premium, $15; 2d, $10; 3d, $5.

The entries of stallions as roadsters, at the State Fair, were as follows:—

No. 1.—Stallion, "Empire State," "English Messenger," 4 years old, owned by Charles Waite, Cambridgeport.

2—Stallion, "Massachusetts Morgan," $\frac{3}{4}$ Morgan and $\frac{1}{4}$ English, 13 years old, weight, 990 lbs., $14\frac{1}{2}$ hands high, owned by Jalom Gates, Worcester.

No. 3.—Stallion, "Nicholas," 5 years old, weight, 980 lbs., 15¾ hands high, owned by John Chamberlain, Jr., Lowell.

4.—Stallion, "Osceola," Black Hawk, 6 years old, weight, 900 lbs., owned by David Hill, Bridport, Vt.

5.—Stallion, "Don Juan," John Anderson and Gipsey, 4 years old, owned by James F. Thorndike, N. E. Village.

6.—Stallion, "Byron," Black Hawk and Morgan, 4 years old, weight, 900 lbs., owned by E. Goodwin, Boston.

7.—Stallion, "Right Bower," Morgan, 4 years old, owned by W. R. Wheelock, Grafton.

8.—Stallion, "Pete Jones," Black Hawk and English, 3 years old, by D. T. Sargent, Boxborough.

9.—Stallion, "Morgan Empire," Morgan, 4 years old, weight, 950 lbs., owned by John Leet, Roxbury.

10.—Stallion, "Tally Ho," 4 years old, weight, 960 lbs., owned by Wm. Mathews, Roxbury.

11.—Stallion, "English Morgan," 3 years old, weight, 850 lbs., owned by J. W. Hollis, Brighton.

12.—Stallion, "Wm. Gifford," Gifford Morgan, 9 years old, weight, 988 lbs., owned by A. L. Brooks, Lowell.

13.—Stallion, "Nicholas," 5 years old, weight, 950 lbs, owned by W. G. Lewis, Framingham.

14.—Stallion, "Empire State," 4 years old, weight, 950 lbs., owned by S. O. Richardson, South Reading.

15.—Stallion, "Young St. Lawrence," 5 years old, weight, 975 lbs., owned by C. Boynton, Georgetown.

6—Stallion, "Ethan Allen," 4 years old, weight, 950 lbs., owned by John Leet, Roxbury.

17.—Stallion, "Bulrush," Morgan, 11 years old, weight, 975 lbs., owned by G. R. Mathews, Roxbury.

18.—Stallion, "Veto," 5 years old, weight, 900 lbs., owned by S. Langmaid, Cambridge.

19.—Stallion, "Columbus, Jr.," 5 years old, weight, 990 lbs., owned by W. Smith, Orwell, Vt.

20.—Stallion, "Mount Vernon," 7 years old, weight, 1,000 lbs., owned by A. Walton, South Reading.

21.—Stallion, "Trotting Childers," Black Hawk, 7 years old, weight, 968 lbs., owned by L. Maynard, Bradford.

22.—Stallion, "Young Hercules," 6 years old, weight, 900 lbs., owned by L. Maynard, Bradford.

23.—Stallion, "Gen. Warren," Ethan Allen, 1 year old, owned by A. B. Magoun, Cambridgeport.

24.—Stallion, "Fremont," Ethan Allen, 16 months old, weight, 630 lbs., 13½ hands high, owned by John P. Cushing, Watertown.

25.—Stallion, "Young Justin Morgan," 3 years old, owned by Sewell Blood, Waltham.

No. 26.—Stallion, "Young Tally Ho," Tally Ho Morgan, 5 months old, weight, 490 lbs., owned by S. P. Smith, Holliston.

27.—Stallion. "Young Ethan," Morgan, 2 years old, weight, 875 lbs., owned by Bancroft Whitman, Stowe.

28.—Stallion, "Wild Air," $\frac{3}{4}$ Black Hawk, $\frac{1}{4}$ English, 2 years old, weight, 900 lbs., owned by O. Clark, Boston.

29.—Stallion, "Hero," $\frac{3}{4}$ Black Hawk, $\frac{1}{4}$ English, 1 year old, weight, 450 lbs., owned by O. Clark, Boston.

30.—Stallion, "Hector," Black Hawk and Eclipse, 3 years old, weight, 900 lbs., owned by R. S. Denny, Clappville.

31.—Stallion, "St. Patrick," Trustee and Abdallah, 3 years old, weight, 900 lbs., owned by J. H. Billings, West Roxbury.

32.—Stallion, "Echo," owned by Joseph Burnett, Southborough.

33.—Stallion, "Ripton," 3 years old, weight, 925 lbs., owned by E. T. Northend, Roxbury.

34.—Stallion, "Don Pedro," 3 years old, weight, 850 lbs., owned by G. W. Todd, Concord.

35.—Stallion, "Gen. Putnam," 16 months old, weight, 800 lbs., owned by Lyman Kinsley, Canton.

36.—Stallion, "Prince Albert," Messenger Morgan, 2 years old, weight, 940 lbs., owned by A. Howe, Brighton.

37.—Stallion, "Young Daniel," Messenger, 17 months old, weight, 790, lbs., owned by C. W. Cushing, South Hingham.

38.—Stallion, "Iron Duke," 16 months old, owned by Joseph Burnett, Southborough.

39.—Stallion, "Ned Forrest," Messenger, 2 years old, weight, 775 lbs., owned by M. Williams, Boston.

40.—Stallion, "Crescent," 2 years old, weight, 1,000 lbs., owned by J. D. Hildreth, Manchester.

41.—Stallion, "Dickey," 2 years old, weight, 900 lbs., owned by Isaac Mills, Worcester.

42.—Stallion, "Young America," 3 years old, weight, 1,000 lbs., owned by S. J. Capen, Dorchester.

43.—Stallion, "Childers," 2 years old, owned by S. J. Capen, Dorchester.

44.—Stallion, "Ethan," 1 year old, owned by S. J. Capen, Dorchester.

45.—Stallion, "Navigator," 2 years old, weight, 800 lbs., owned by S. Hayes, Natick.

46.—Stallion, "Morrill Rambler," 2 years old weight, 995 lbs., owned by Wm. M. Parker, Concord, N. H.

47.—Stallion, "Noble," 17 months old, weight, 800 lbs., owned by W. H. Harrington, Salem.

48.—Stallion, "Doncaster," 2 years old, weight, 850 lbs., owned by George B. Loring, Salem.

The judges on stallions over three years old and under 1,000 lbs., entered as roadsters, presented the following

REPORT:

The committee award the first premium on horses, over four years old, to Lambert Maynard, of Bradford, for his horse, "Trotting Childers."

Second, to S. Langmaid, of Cambridge, for his horse, "Veto."

Third, to Charles Boynton, of Georgetown, for his horse, "Young St. Lawrence."

On horses over three and under four, they award the first premium to R. S. Denny, of Clappville, for his horse, "Hector."

Second, to Joseph H. Billings, of West Roxbury, for his horse, "St. Patrick."

Third, to S. Hayes, of Natick, for his horse, "Navigator."

They also recommend the following gratuities :—

To David Hill, of Bridport, Vt., $20 for his horse, "Osceola."

To W. Smith, Orwell, Vt., $20 for his horse, "Columbus, Jr."

For the committee,

Samuel C. Oliver.

The judges on stallions one year old and under three, entered as roadsters, presented the following

REPORT:

The committee award the first premium for stallions, over two years old and under three, to A. Howe, of Brighton, for his horse, "Prince Albert."

Second, to Bancroft Whitman, of Stowe, for his horse, "Young Ethan."

Third, to I. Mills, of Worcester, for his horse, "Dickey."

For stallions, one year old and under two, they award the first premium to A. B. Magoun, of Cambridgeport, for his horse, "General Warren."

Second, to Wm. H. Harrington, of Salem, for his horse, "Noble."

Third, to S. J. Capen, of Dorchester, for his horse, "Ethan."

The committee also recommend a gratuity of $15 to William M. Parker, of Concord, N. H., for his horse, "Morrill Rambler," and another of $15 to Dr. George B. Loring, of Salem, for his horse, "Doncaster."

J. N. Bates, *Chairman.*

The premiums offered for mares, four years old and upwards, were the same as those offered for stallions of the same age. Similar premiums were also offered for geldings four years old and over, and for mares with foals at their side.

The following entries were made of mares and geldings, as roadsters, under 1,000 lbs., viz. :—

No. 1.—Gelding, "Dandy," Green Mountain Morgan, 14½ hands high, owned by Charles G. King, Boston.

2.—Mare, "Waltham Maid," 3 years old, weight, 850 lbs., owned by Sewell Blood, Waltham.

3.—Mare, "Forest Maid," Morgan, 6 years old, weight, 800 lbs., owned S. G. Bean, North Andover.

4.—Mare, "Belle," Black Hawk, 9 years old, 15½ hands high, owned by David Ellis, Cambridge.

5.—Gelding, "Bill Lawrence," 4 years old, weight, 800 lbs., owned by Amos Spelman, South Boston.

6.—Gelding, "Brown Dell," Rocky Mountain breed, 6 years old, weight, 925 lbs., 15 hands high, owned by Samuel T. Payson, Newburyport.

7.—Gelding, "Roan Billy," Messenger, 4 years old, 950 lbs., 15½ hands high, owned by J. A. Cheney, Boston.

8.—Gelding, "Shylock," 8 years old, weight, 975 lbs., owned by George M. Lawrence, Stowe.

9.—Gelding, "Billy Eaton," Hamiltonian and Messenger, 5 years old, weight, 900 lbs., owned by J. H. Bickford, Melrose.

10.—Mare, "Miss Jane," Morgan and Canadian, 7 years old, weight, 850 lbs., owned by B. Ford, Jr., Dorchester.

11.—Mare, "Jennie," 5 years old, weight, 995 lbs., C. W. Griffiths, Jamaica Plain.

12.—Gelding, "Northern Boy," Morgan and Messenger, 6 years old, weight, 925 lbs., owned by H. F. and C. H. Bright, Watertown.

13.—Mare (with foal at side), "Kate Bacon," Morgan, 13 years old, weight, 975 lbs., owned by O. Clark.

14.—Mare, "Lady Forrest," Morgan 6 years old, weight, 900 lbs., owned D. F. Flagg, Boston.

15.—Mare, "Kate," 6 years old, weight, 978 lbs., owned by J. P. Whitney, Boston.

16.—Mare, "Jennie," Messenger, 8 years old, weight, 800 lbs., owned by Thomas Boylston, Boston.

17.—Mare, "Silver Tail," Messenger, 8 years old, 960 lbs, owned by Robert Kelren, South Boston.

18.—Brood Mare, "Kate Tucker," (foal at her side,) Messenger, 10 years old, 950 lbs., owned by Joseph Burnett, Southborough.

19.—Gelding, "Doctor," French and English, 7 years old, weight, 950 lbs., owned by John Hagar, South Boston.

No. 20.—Gelding, "Kossuth," 6 years old, weight, 950 lbs., owned by Samuel H. Rhodes, Concord.

21.—Mare, "Flora," 7 years old, weight, 960 lbs., owned by G. Twichell, Brookline.

22.—Gelding, "Tom," 6 years old, weight, 940 lbs., owned by Stevens & Holt, Boston.

23.—Mare, "Sukie," Messenger, 6 years old, weight, 925 lbs., owned by T. Ambrose, Boston.

24.—Mare, "Jennie," Sherman Morgan, 9 years old, weight, 900 lbs., owned by George W. Teal, South Danvers.

25.—Mare, "Katie," Morrill, 5 years old, weight, 1,000 lbs., 15 hands high, owned by N. D. Hardy, Framingham.

26.—Gelding, "North Horse," Sherman Morgan, 7 years old, weight, 1,000 lbs., owned by John Clark, Framingham.

27.—Gelding, "Joe," 7 years old, weight, 1,000 lbs., owned by W. A. Sprague, South Boston.

28.—Gelding, "Charlie," 9 years old, weight, 1,000 lbs., owned by W. Cunningham, Boston.

29.—Mare, "Kate," Morgan, 5 years old, weight, 875 lbs., S. B. Peirce, Jr., Boston.

30.—Mare, "Kittie," French Morgan, 5 years old, weight, 950 lbs., owned by William McMahon, South Boston.

31.—Gelding, "Old Bones," 24 years old, weight, 1,000 lbs., owned by Patrick Greeley, Boston.

32.—Mare, "Kate Hamilton," 7 years old, weight, 875 lbs., owned by Daniel Bigley, Boston.

33.—Mare, "Bonnet O'Blue," 6 years old, weight, 925 lbs., owned by J. F. Lippett, Grafton.

34.—Mare, "Bessie," (foal at side,) 5 years old, weight, 1,000 lbs., owned by A. D. Weld, West Roxbury.

35.—Mare, "Lady Gray," Morgan and English, 7 years old, weight 950 lbs., 15 hands high, owned by W. C. Clark, Worcester.

36.—Mare, "Queen," 9 years old, weight, 1,000 lbs., owned by James H. Waite, South Natick.

37.—Gelding, "Dred," 6 years old, weight, 912 lbs., owned by A. J. Clark, South Natick.

38.—Gelding, "Andy," 6 years old, weight, 970 lbs., owned by Henry Daniels, South Natick.

39.—Mare, "Empress," 8 years old, weight, 850 lbs., owned by J. A. Nye, Boston.

40.—Mare, "Modesty," 8 years old, weight, 850 lbs., owned by T. J. Fenner, Boston.

41.—Gelding, "Charlie," 7 years old, weight, 925 lbs., owned by George I. Fullam, Boston.

42.—Mare, "Lady Jane," 6 years old, weight, 990 lbs., owned by Charles Boynton, Georgetown.

43.—Gelding, "Murat," 6 years old, 975 lbs., owned by Charles Copeland, Wyoming.

No. 44.—Gelding, "Polar Star," Messenger and Morgan, 6 years old, weight, 1,000 lbs., owned by Harvey Rogers, Chelsea.

45.—Mare, "Lady Norfolk," 10 years old, weight, 900 lbs., owned by W. W. Upham, Dover.

46.—Mare, "Mollie," 8 years old, weight, 900 lbs., owned by L. A. Hitchcock, Boston.

47.—Mare, "Young Squaw," 6 years old, weight, 900 lbs., owned by B. Hibbard, Saugus.

48.—Mare, "Kate," 8 years old, weight, 875 lbs., owned by J. W. Crosby, North Bridgewater.

49.—Gelding, "Buckeye," 8 years old, weight, 1,000 lbs., owned by J. M. Elder, Boston.

50.—Mare, "Black Maria," 7 years old, weight, 1,000 lbs., owned by Thomas Johnson, South Boston.

51.—Gelding, "Billy," 8 years old, weight, 1,000 lbs., owned by Thomas Lynch, Boston.

52.—Mare, "Flirtilla," Arabian Messenger, 7 years old, weight, 925 lbs., owned by Barnard Ford, Dorchester.

53.—Mare, "Cora," 4 years old, weight, 900 lbs., owned by C. D. Snell, Boston.

54.—Mare, "Kate Miller," 10 years old, weight, 875 lbs., owned by John H. Henshaw, Brookline.

55.—Gelding, "Paragon," 6 years old, weight, 900 lbs., owned by S. C. Richards, Worcester.

56.—Gelding, "Robert," 5 years old, weight, 900 lbs., owned by T. W. Neal, Wolfborough, N. H.

57.—Mare, "Lady Moscow," 4 years old, weight, 875 lbs., owned by D. C. Berry, Boston.

58.—Gelding, "Dick," 5 years old, weight, 900 lbs., owned by Whittemore & Henry, Paxton.

59.—Mare, "Fannie," 7 years old, weight, 900 lbs., owned by C. S. Fowle, Jr., Boston.

60.—Gelding, "Chicago Jack," 10 years old, weight, 1,000 lbs., owned by F. E. Faxon, Boston.

61.—Mare, "Medora," 9 years old, weight, 900 lbs., owned by J. D. Bradley, Milton.

62.—Gelding, "Jerry," 8 years old, weight, 925 lbs., owned by J. R. Hill, Roxbury.

63.—Gelding, "Hardroad," 9 years old, weight, 900 lbs., owned by W. H. Elder, Boston.

64.—Mare, "Mayflower," Morgan, 9 years old, weight, 950 lbs., owned by John Dugan, Somerville.

65.—Gelding, "Gray Eagle," Messenger, 5 years old, weight, 1,000 lbs., owned by T. Hannum, South Boston.

66.—Mare, "St. Lawrence Maid," 5 years old, weight, 850 lbs., owned by P. Moley, Brighton.

67.—Mare, "Jennie," 8 years old, weight, 900 lbs., owned by J. H. Pote, East Boston.

No. 68.—Mare, "Dolly," 7 years old, weight, 880 lbs., owned by W. A. Ford, Boston.

69.—Mare, "Minnehaha," 4 years old, weight, 1,000 lbs., owned by Thomas F. Richardson, Boston.

70.—Mare, "Kate," (foal at her side,) 10 years old, weight, 1,000 lbs., owned by James Wise, South Lancaster.

71.—Gelding, "Lancaster," 5 years old, weight, 975 lbs., owned by James Wise, South Lancaster.

72.—Gelding, "Billy," 4 years old, weight, 980 lbs., owned by S. Lawrence, East Lexington.

73.—Gelding, "Brown Bob," 9 years old, weight, 950 lbs., owned by E. T. Balcom, Worcester.

74.—Mare, "Lady Bliss," 7 years old, weight, 950 lbs., owned by R. S. Denny, Clappville.

75.—Gelding, "Blue Bonnet," 10 years old, weight, 1,000 lbs., owned by Daniel Ewen, Dorchester.

76.—Gelding, "Sleepy David," 7 years old, weight, 1,000 lbs., owned by John T. Keating, Boston.

77.—Mare, "Mystery," 4 years old, weight, 850 lbs., owned by E. Wheeler, Marlborough.

78.—Mare, "Flying Nellie," 7 years old, weight, 1,000 lbs., owned by B. H. Hinckley, Roxbury.

79.—Gelding, "Black Hawk," 7 years old, weight, 875 lbs., owned by A. M. Polsey, Roxbury.

80.—Mare, "Mary Ann," 9 years old, weight, 925 lbs., owned by W. Merritt, Boston.

81.—Mare, "Nancy," 8 years old, weight, 850 lbs., owned by James Buchanan, Boston.

82.—Mare, "Lady Lightfoot," Black Hawk, 5 years old, weight, 850 lbs., owned by H. D. Smith, East Cambridge.

83.—Gelding, "Gray Eagle," 6 years old, weight, 1,000 lbs., owned by Edward Gould, Jr., Boston.

84.—Gelding, "Somerville," 5 years old, weight, 920 lbs., owned by John R. Poore, Somerville.

85.—Mare, "Fannie," 7 years old, weight, 980 lbs., owned by C. T. Williams, Roxbury.

86.—Mare, "Susan Bell," 6 years old, weight, 1,000 lbs., owned by Thomas Dolan, Roxbury.

87.—Gelding, "Whalebone," 8 years old, weight, 1,000 lbs., owned by M. Williams, Boston.

88.—Gelding, "John," 9 years old, weight, 1,000 lbs., owned by H. C. Nims, Boston.

89.—Gelding, "Spot," 7 years old, weight, 875 lbs., owned by J. F. Pray, Boston.

90.—Gelding, "Tom," 10 years old, weight, 990 lbs., owned by E. Johnson, Winchester.

No. 91.—Gelding, "Dr. Beecher," 8 years old, weight, 900 lbs., owned by P. Morton, Boston.

92.—Mare, "Fannie," Morgan, 4 years old, weight, 970 lbs., owned by Lewis Wheeler, Boston.

93.—Mare, "Black Hawk Maid," 6 years old, weight, 925 lbs., owned by C. Campbell, Roxbury.

94.—Gelding, "Major Ringold," 4 years old, weight, 850 lbs., owned by Charles Sargent, Boston.

95.—Gelding, "Hector," 9 years old, weight, 975 lbs., owned by James B. Dow, Boston.

96.—Gelding, "Red Bird," 8 years old, weight, 925 lbs., owned by William W. Parker, Cambridge.

97.—Gelding, "Lightfoot," 6 years old, weight, 1,000 lbs., owned by C. S. Fuller, Worcester.

98.—Mare, "Kate," 6 years old, weight, 1,000 lbs., owned by C. A. Browning, Boston.

99.—Mare, "Martha Ward," 6 years old, weight, 990 lbs., owned by J. W. Hollis, Brighton.

100.—Gelding, "Pet," 5 years old, weight, 950 lbs., owned by B. F. Porter, Dover.

101.—Mare, "Empress," 7 years old, owned by J. B. Glover, Boston.

102.—Gelding, "Black Ralph," 6 years old, weight, 950 lbs., owned by Frank Briggs, Dorchester.

103.—Mare, "Lady Emma," 9 years old, weight, 925 lbs., owned by Thomas D. Cook, North Cambridge.

104.—Gelding, "Jimmie," 6 years old, weight, 900 lbs., owned by A. R. Mathews, Roxbury.

105.—Gelding, "Roman," 6 years old, weight, 1,000 lbs., owned by C. F. Whitcomb, Boston.

106.—Gelding, "Prince," 7 years old, weight, 900 lbs., owned by G. H. Lancaster, Boston.

107.—Mare, "Lady Jane," 7 years old, weight, 800 lbs., owned by S. Dane, Hamilton.

108.—Mare, "Dollie," 8 years old, weight, 970 lbs., owned by C. Moulton Framingham.

109.—Gelding, "Bob," 9 years old, weight, 850 lbs., owned by S. S. Rowe, Boston.

110.—Mare, "Fannie," 8 years old, weight, 850 lbs., owned by Dr. Hobbs, Boston.

111.—Gelding, "Neighbor," 4 years old, weight, 980 lbs., owned by C. H. Smith, East Boston.

112.—Gelding, "Charlie," 6 years old, weight, 1,000 lbs., owned by J. P. Foster, East Bridgewater.

113.—Gelding, "Ben," 8 years old, weight, 900 lbs., owned by J. D. Walton, South Reading.

114.—Mare, "Beppo," 7 years old, weight, 900 lbs., owned by J. N. Burns, Boston.

No. 115.—Gelding "Butcher Boy," 8 years old, weight, 925, lbs., owned by H. Heaton, West Cambridge.

116.—Mare, "Jennie," 8 years old, weight, 890 lbs., owned by W. Davis, Roxbury.

117.—Gelding, "Stranger," Messenger Morgan, 6 years old, weight, 975 lbs., owned by A. Allen, Boston.

118.—Mare, "Flying Arrow," 4 years old, weight, 800 lbs., owned by R. S. Flanders, Roxbury.

119.—Mare, "Pretty Kate," 6 years old, weight, 750 lbs., owned by J. B. Smith, Roxbury.

120.—Gelding, "Hunter," 6 years old, weight, 1,000 lbs., owned by Washington Simonds, South Danvers.

121.—Gelding, "Hero," 6 years old, weight, 925 lbs., owned by Harrison Rogers, North Bridgewater.

122.—Mare, "Lady Rogers," 5 years old, weight, 825 lbs., owned by Harrison Rogers, North Bridgewater.

123.—Gelding, "Prince," 6 years old, weight, 900 lbs., owned by George H. Wood, Boston.

The judges on mares and geldings four years old and upwards, not exceeding one thousand pounds, entered as roadsters, not including mares with foals at their side, presented the following

REPORT:

That they have exerted themselves faithfully to perform their duties, and are entirely satisfied with their endeavors and tolerably so with the results of them.

As the committee could not have the track on Wednesday, they were obliged to proceed to the open space at the northerly end of the grounds, for their examination, besides visiting the stalls. For upwards of three hours they were at their post, on one of the coldest and most disagreeable days of the season, and did not leave until every animal presented was examined. There was great lack of knowledge on the part of owners and drivers as to the breeds of their respective animals.

All the preconceived notions of the committee as to horses were disturbed and combated. There were Messengers of every shape and gait. There were Morgans without a single distinctive sign of that very recognizable breed.

We were asked to believe that one animal, short-legged, a neck like a bull, and mane and tail like a sheep's fleece, was a half-bred, and that certain enlargements on others were not spavins. We were pained to hear that several animals presented were born with certain defects—and it was urged upon us that those defects did not constitute unsoundness, as they certainly would in case they were acquired by straining, or hard usage. The committee, however, not being veterinary surgeons, and not conceiving themselves called upon to examine the authorities previous to making their awards and report, rejected all blemished animals, without considering whether their defects were congenital or acquired. Perhaps some injustice may have resulted from this course.

The examination was resumed on Thursday, and all animals examined which were not presented the first day. On this day the committee were allowed the use of the track for about half an hour, not a sufficient length of time for their satisfaction.

The awards of the committee are as follows:—

The first premium for geldings, to E. Johnston, of Winchester, for his black gelding "Tom."

The committee were unanimous in the opinion that this animal combines in a remarkable degree the qualities of strength and speed for which the New England roadster is celebrated.

The second premium for geldings, to Washington Simonds, of South Danvers, for his chestnut gelding, "Hunter." This was undoubtedly the most beautiful animal of this class, of extraordinary spirit, perfect docility, limbs as clean as a thorough-bred, and a grace of movement rarely seen, with a fair turn of speed.

The third premium for geldings, to Edward Gould, Jr., of Boston, for his iron gray gelding, "Gray Eagle." This animal besides being faultless to the eye and thoroughly broken, possessed considerable speed.

The first premium for mares was awarded to David Ellis, of Cambridge, for his Black Hawk mare, "Belle." This was the finest specimen of the Morgan upon the grounds, an animal no lover of the horse could fail to admire. A finer combination of spirit, strength, docility and beauty, it would be difficult to find.

The second premium for mares, to Joseph B. Glover, of Boston, for his black mare, "Empress," an animal of fine form, game appearance and considerable speed.

The third premium for mares, to Ginery Twichell, of Brookline, for his mare, "Flora." The committee were unanimous in their approval of this animal.

The committee also submit a list of animals deserving of especial commendation:—

Sorrel gelding, "Billy Eaton," the property of J. H. Bickford, Melrose.

Bay mare, "Jennie," the property of George M. Teal, South Danvers.

Gray mare, "Lady Grey," the property of Wm. C. Clark, Worcester.

Gray mare, "Lady Jane," the property of Charles Boynton, Georgetown.
Gelding "Paragon," the property of S. C. Richards, Worcester.
Mare, "Minnehaha," the property of Thomas F. Richardson, Boston.
Mare, "Fanny Grey," the property of R. S. Denny, Clappville.
Gelding, "Lightfoot," the property of C. S. Fuller, Worcester.
Gelding, "Redbird," the property of Wm. W. Parker, Cambridge.
Gelding, "Jimmy," the property of A. R. Mathews, Roxbury.
Mare, "Forest Maid," the property of S. G. Bean, North Andover.
Mare, "St. Lawrence Maid," the property of P. Moley, Brighton.

The committee would have been more entirely satisfied if they had been allowed a longer use of the track, that they might have had a better opportunity of observing the action and judging of the merits generally of the animals of this class.

They would also have been gratified with the exclusive use of the track for a short time after their awards had been made, for the purpose of exhibiting to the public the preferred animals.

S. E. Sprague, *Chairman.*

The judges on brood-mares, with foals at their side, made the following

REPORT:

The committee awarded the first premium for mares, under 1,000 lbs., to Joseph Burnett, Southborough; the second, to O. Clark, Boston.

Discretionary Premiums.—To J. Wise; C. D. Nourse, Shrewsbury, and J. H. Bent.

For mares, over 1,000 lbs., entered as horses for general utility, they award the first premium to Lambert Maynard, Bradford; second, to Samuel P. Smith, Holliston; third, to J. B. Moore, Concord.

Discretionary Premiums.—To N. Cutler, Medway; John Dugan, Somerville.

In consequence of the advanced age of the foals belonging to Mr. Nourse and Mr. Dugan, the committee did not hold that they could compete for premium. The mare and foal belonging to Mr. Cutler, arrived too late to compete for regular premium.

A strong well-bred mare, with foal at her side, owned by A. D. Weld, West Roxbury, was in the hands of a groom unaccustomed to his duty, while the mare, evidently intent on maternal duty, refused to be shown to advantage in any position in which her groom tried to place her.

For the committee,

Eben Wight.

The premiums offered for fillies three years old and under four, entered as roadsters, were the same as those for stallions of the same age, and for fillies two years old and under three, and one year old and under two, the same as for stallions of the same ages respectively, as given on page 88.

The entries of fillies in this division were as follows:—

No. 1.—Filly, "Lady Ellis," Morgan and English, 3 years old, weight, 870 lbs., 14 hands high, owned by J. Gates, Worcester.

2.—Filly, "Jennie," half Black Hawk, 2 years old, weight, 900 lbs., owned by J. C. Ripley, Worcester.

3.—Filly, "Fannie," 16 months old, owned by John P. Cushing, Watertown.

4.—Filly, "Nellie Bly," 2½ years old, weight, 900 lbs., owned by John Hosmer, Concord.

5.—Filly, "Kittie," Ethan Allen and Morgan, 2 years old, weight, 850 lbs., owned by O. Clark, Boston.

6.—Filly, "Flora," half Black Hawk and Morgan, 1 year old, weight, 400 lbs., owned by O. Clark, Boston.

7.—Filly, "Gipsey, Jr.," sired by Nonpareil, 1 year old, owned by James F. Thorndike, New England Village.

8.—Filly, "Jennie," 16 months old, weight, 680 lbs., owned by Samuel P. Smith, Holliston.

9.—Filly, "Abel Lyman," 3 years old, weight, 850 lbs., owned by George M. Teal, South Danvers.

10.—Filly, "Venus," Nonpareil, 10 months old, owned by C. D. Nourse, Shrewsbury.

11.—Filly, "Ladie Nellie," Messenger and Morgan, 2 years old, owned by G. W. Parmenter, Northborough.

12.—Filly, "Young Jennie," 16 months old, owned by John H. Bent, Concord.

13.—Filly, "Jennie Lind," 3 years old, owned by J. D. Bradley, Milton.

14.—Filly, "Marion," Black Hawk, 2 years old, weight, 860 lbs., owned by William Peters, North Andover.

15.—Filly, "Fannie," 3 years old, weight, 850 lbs., owned by James Wise, South Lancaster.

16.—Filly, "Fannie," 2 years old, weight, 800 lbs., owned by J. J. Carr, Quincy.

17.—Filly, "Fannie Grey," 4 years old, weight, 900 lbs., owned by R. S. Denny, Clappville.

18.—Filly, "Sorrel Pet," 3 years old, owned by G. B. Blanchard, North Bridgewater.

19.—Filly, "St. Lawrence," 3 years old, weight, 865 lbs., owned by John M. Gay, Stoughton.

20.—Filly, "Baby Childers," 3 years old, owned by L. Maynard, Bradford.

21.—Filly, "Proxy," 3 years old, owned by L. Maynard, Bradford.

The judges on fillies presented the following

REPORT:

The committee on fillies under four years old, found twenty-three entries, and they award the following premiums :—

For three year olds—First premium, to Lambert Maynard's filly, "Baby Childers," $30.

Second premium to Lambert Maynard's filly "Proxy," $20.

Third premium, to Sewell Blood's filly "Waltham Maid," $10.

For two year olds—First premium, to William Peters' filly, $20.

Second premium, to J. C. Ripley's filly "Jennie," $15.

Third premium, to G. W. Parmenter's filly, $10.

For yearling fillies—First premium to C. D. Nourse's filly "Venus," $15.

Second premium, to O. Clark's filly "Flora," $10.

Third premium, to S. P. Smith's filly, "Jennie," $5.

The committee recommend to George C. Teal's gelding, 3 years old, named "Abel Lyman," a diploma, as a valuable, fine-gaited, trotting gelding, they not being authorized to judge of geldings in the class of fillies in which he was entered.

George B. Loring, *Chairman.*

HORSES FOR GENERAL UTILITY.

As already intimated in speaking of roadsters, this term, as designating a class of horses, implies the union of a greater variety of qualities, than would be expected in any other. A horse best adapted to general utility, or a horse of-all-work, need not excel to an eminent degree in any one, and the fact of his excelling in any one point, does not imply that he is well suited for other purposes. Strength, docility, and kindness at a "dead lift," and hardiness of constitution, are essential qualities; and these imply compactness and firmness of form and short legs. Compact and firmly built horses will generally last longer, do their work better, and prove more useful in all situations than larger and longer legged animals, though longer legs may increase the speed. A small or medium sized horse, with flat bone, well covered with muscle and sinew, shoulder somewhat oblique, if the horse is not to be used for too heavy draught, withers thin and flat, back short and straight, round in the barrel, with wide, long and muscular hips, will often be more generally useful than a horse of larger size.

There is a distinct and widely distributed breed of horses in Scotland, called the Clydesdale. Their chief points are short legs, strong and compact bodies, with sometimes a tendency to longer legs and lighter bodies, fine heads well set on, full chest, well formed shoulders; short back, strong in the loin with short coupling, long and well formed hind-quarters, wide and well formed hips, strong in the hock, with flat bone, and good, sound feet. This horse is the general favorite for farm-work of every description.

A horse for general purposes should weigh somewhere from ten to eleven hundred pounds, though many horses under that weight prove themselves capable, in point of strength and endurance, of performing any of the services usually required on the farm, and for heavy draught twelve hundred may not be too large. It has been said and with truth that there is no point more desirable than that the horse should appear to be smaller than he really is. It is pretty good evidence that the animal is compact and symmetrically formed.

Most of the horses entered in this division at the State Fair, were, according to the report of the judges, of a very high order of merit.

"Petersham Morgan," was sired by "Black Morgan," g sire, "Green Mountain, 2d," g g sire, "Gifford," g g g sire, "Woodbury," g g g g sire, "Justin Morgan." "Black Morgan's" dam was also sired by "Green Mountain, 2d."

Dam of "Petersham Morgan," by "Emperor," her dam by "Woodbury Morgan." "Emperor" was foaled in 1837, sired by "Bulrush," g sire, "Justin Morgan." "Woodbury" was sired by "Justin Morgan."

"Anglo-Saxon" was sired by a son of old "Black Hawk," out of a Sherman Morgan mare; dam by "Post Boy," by "Henry," well known thorough-breds. He has therefore a strain of the Black Hawk, the Morgan, and the thorough-bred. He is said to possess great muscular development, speed and power of endurance.

The premiums offered for stallions over one thousand pounds in weight, entered as horses for general utility, were the same as those for stallions over four years old, entered as roadsters, as given above.

The entries of stallions in this division were as follows:—

No. 1.—Stallion, "Anglo-Saxon," Black Hawk, 7 years old, weight, 1,100 lbs., 15½ hands high, owned by Bean & Johnson, North Andover.

2.—Stallion, "Signal," Morgan, 6 years old, weight, 1,100 lbs., 16 hands high, owned by Moses Colman, Newburyport.

3.—Stallion, "Rip Van Winkle," Black Hawk, 5 years old, weight, 1,050 lbs., owned by Noble H. Hill, Boston.

4.—Stallion, "Middlesex," Black Hawk and Morgan, 4 years old, weight, 1,010 lbs., owned by John Hosmer, Concord.

5.—Stallion, "Nonpareil," Cassius M. Clay and Gipsey, 5 years old, weight, 1,125 lbs., 16¼ hands high, owned by James F. Thorndike, New England Village.

6.—Stallion, "Cossack," Black Hawk and Messenger, 6 years old, owned by G. W. Todd, Concord.

7.—Stallion, "Duroc," Morgan, 5 years old, weight, 1,130 lbs., owned by Robert Kelren, South Boston.

8.—Stallion, "Petersham Morgan," 5 years old, weight, 1,030 lbs., owned by F. Twichell, Jr., Templeton.

9.—Stallion, "Daniel Webster," 9 years old, weight, 1,400 lbs., owned by Holbrook & Co., Dorchester.

10.—Stallion, "St. Lawrence, Jr.," 6 years old, weight, 1,050 lbs., owned by P. Moley, Brighton.

11.—Stallion, "Charlie," 8 years old, weight, 1,090 lbs., owned by C. H. Sherman, Natick.

12.—Stallion, "St. Lawrence," 5 years old, weight, 1,020 lbs., owned by Charles Law, Cambridge.

13.—Stallion, "Saratoga," Black Hawk, 6 years old, weight, 1,030 lbs., owned by S. F. Twichell, Framingham.

14.—Stallion, "Messenger," 5 years old, weight, 1,350 lbs., owned by Samuel Logan, Portland, Me.

15.—Stallion, "Hampden," Messenger Morgan, 9 years old, weight, 1,110 lbs., owned by N. R. Washburn, Springfield.

16.—Stallion, "Black Prince," 9 years old, weight, 1,262 lbs., owned by S. Dame, Hamilton.

17.—Stallion, "Natick Cobbler," 6 years old, weight, 1,100 lbs., owned by S. Hays, Natick.

18.—Stallion, "Massachusetts Morgan, Jr.," 4 years old, weight, 1,050 lbs., owned by P. Cahill, Hopkinton.

19.—Stallion, "Mt. Vernon," 7 years old, weight, 1,020 lbs., owned by A. Walton, South Reading.

The judges on stallions over four years of age, entered as horses for general utility, submitted the following

REPORT:

There were nineteen entries in this division, and the committee award the first premium of $40, to Francis Twichell, Jr., of Templeton, for his horse "Petersham Morgan;" the second, of $30, to Noble H. Hill, of Boston, for his horse "Rip Van Winkle;" the third, of $30, to A. Walton, of South Reading, for his horse "Mount Vernon."

This was unquestionably the best exhibition of horses, of this class, ever made in the State of Massachusetts.

Every one of the whole nineteen were good horses, and most of them possessed so many peculiar points of excellence, that it was extremely difficult to designate those that were above all others entitled to the premium offered by the Board.

The term, "general utility" involves the necessity of a particular examination of each animal offered, with regard to their ability to perform the various kinds of labor—on the farm, the road, for draught, for light work, speed, blood, powers of endurance, and various other things. When the limited time allowed for the examinations, or the great number of animals offered is considered, it will be apparent that it was impossible for the committee to take each horse and go into the extended examinations and trials that the case would seem to demand. Owing to the peculiarities above alluded to, the committee found themselves under much embarrassment, but proceeded as best they could, to designate the three horses in their opinion best entitled to the premiums, and then classify them into first, second, and third. After doing this, it was the design of the committee to further classify and designate, and thus indicate in some measure the committee's opinion of the classified order of excellence, but in addition to the difficulties above alluded to, it was found that a report upon that plan would necessarily become too voluminous, and the committee are compelled to content themselves with making this general report, and agreed that they would do no more.

All of which is respectfully submitted by

IVERS PHILLIPS,
J. S. F. HUDDLESTON,
M. D. PHILLIPS,
Committee.

The premiums offered for mares and geldings four years old and upwards, entered as horses for general utility, were the same as for stallions of the same age.

The following is the list of entries of mares and geldings, over 1,000 lbs., entered as horses for general utility:—

No. 1.—Mare, "Farmer Girl," owned by S. K. Johnson, North Andover.

2.—Gelding, "Charlie," 16 years old, weight, 1,076 lbs., 15½ hands high, owned by William B. Harris, North Woburn.

3.—Mare, "Young Lady Suffolk," Messenger, 5 years old, weight, 1,010 lbs., 15 hands 3 inches high, owned by Samuel T. Payson, Newburyport.

4.—Mare, "Dolly Morgan," Tally Ho Morgan, 12 years old, weight, 1,150 lbs., owned by Samuel P. Smith, Holliston.

5.—Gelding, "Rob Roy," Sherman Morgan, 6 years old, weight, 1,040 lbs., 15½ hands high, owned by C. W. Bellows, Pepperell.

6.—Gelding, "Morgan Rattler," 6 years old, weight, 1,080 lbs., owned by F. Leonard, East Bridgewater.

7.—Gelding, "Ned Morrill," 6 years old, weight, 1,025 lbs., owned by B. F. Danforth, Boston.

8.—Mare, "Nellie, (with foal at side,) Black Hawk and English, 6 years old, weight, 1,010 lbs., owned by O. Clark, Boston.

9.—Gelding, "Farmington Boy," Messenger, 5 years old, weight, 1,075 lbs., 16 hands high, owned by Henry Blanchard, East Stoughton.

10.—Mare, "Pocahontas," nearly thorough-bred, 9 years old, weight, 1,200 lbs., owned by R. S. Denny, Clappville.

11.—Gelding, "Major Ringgold," Morgan, 7 years old, weight, 1,013 lbs., owned by Elijah Denny, Boston.

12.—Mare, "Jessie," Morgan, 6 years old, weight, 1,050 lbs., owned by William C. Morey, Boston.

13.—Mare, "Queen Anne," 8 years old, Messenger and Black Hawk, owned by Alfred Boynton, Pepperell.

14.—Mare, "Lina," 4 years old, weight, 1,070 lbs., owned by Samuel H. Rhoades, Concord.

15.—Mare, "Nahmeoka," 8 years old, weight, 1,025 lbs., owned by H. M. Aiken, Dorchester.

16.—Gelding, "Tiger," 10 years old, weight, 1,400 lbs., owned by Burrage, Stickney & Co., Cambridgeport. (Transferred to draught horses.)

17.—Mare, "Bessie," 12 years old, weight, 1,050 lbs., owned by J. A. Head, West Roxbury.

18.—Mare, "Jennie Lind," 9 years old, weight, 1,100 lbs., owned by Lyman Kinsley, Canton.

19.—Gelding, "Major," Messenger, 7 years old, weight, 1,250 lbs., owned by M. L. Seavey, Winchester.

20.—Mare, "Grace," Messenger, 7 years old, weight, 1,080 lbs., owned by G. Twichell, Brookline.

21.—Mare, "Fannie," 8 years old, weight, 1,010 lbs., owned by Joseph N. Ford, Boston.

22.—Mare, "Jennie Lind," (foal at side,) Morgan and English, 7 years old, weight, 1,010 lbs., owned by John H. Bent, Concord.

23.—Gelding, "Major Rogers," 9 years old, weight, 1,300 lbs., owned by J. L. Brown, Roxbury.

24.—Gelding, "Tiger," 5 years old, weight, 1,014 lbs., owned by E. A. Allen, Randolph.

No. 25.—Gelding, "Charlie," 8 years old, weight, 1,025 lbs., owned by N. H. Hill, Boston.

26.—Gelding, "Lion," 6 years old, weight, 1,050 lbs., owned by T. Adams, Roxbury.

27.—Gelding "Dentist," 7 years old, weight, 1,050 lbs., owned by J. B. Lawton, Roxbury.

28.—Mare, "Jennie," 7 years old, weight, 1,050 lbs., owned by F. E. Faxon, Boston.

29.—Mare, "Fannie," Morgan, 6 years old, weight, 1,050 lbs., owned by Thomas J. Clark, Cambridge.

30.—Gelding, "John," 7 years old, weight, 1,005 lbs., owned by William Peters, North Andover.

31.—Mare, "Messenger Girl," 8 years old, weight, 1,130 lbs., owned by E. Wheeler, Marlborough.

32.—Gelding, "North Star," 6 years old, weight, 1,125 lbs., owned by P. Moley, Brighton.

33.—Mare, "Kate," (foal at side.) Morgan, 8 years old, weight, 1,060 lbs., owned by J. B. Moore, Concord.

34.—Gelding, "Peacock," 5 years old, weight, 1,050 lbs., owned by William Barnard, Jr., Boston.

35.—Mare, "New England Maid," 9 years old, weight, 1,060 lbs., owned by C. D. Nourse, Shrewsbury.

36.—Gelding, "Jerry," 7 years old, weight, 1,025 lbs., owned by J. Wooster, Cambridge.

37.—Mare, "Nellie," 8 years old, weight, 1,050 lbs., owned by E. N. Chaddock, Boston.

38.—Gelding, "Joe," 4 years old, weight, 1,140 lbs., owned by Rufus King, Sutton.

39.—Gelding, "Charlie Boston," 9 years old, weight, 1,010 lbs., owned by J. H. Barrett, Boston.

40.—Gelding, "Major," 6 years old, weight, 1,050 lbs., 15½ hands high, owned by A. H. Mather, Boston.

41.—Mare, "My Mary Ann," 6 years old, weight, 1,100 lbs., owned by L. A. Hitchcock, Boston.

42.—Gelding, "Tiger," 9 years old, weight, 1,100 lbs., owned by S. Phipps, Hopkinton.

43.—Mare, "Fannie," 12 years old, weight, 1,025 lbs., owned by R. A. Lamb, Jamaica Plain.

44.—Gelding, "Charlie Bent," 6 years old, 1,136 lbs., owned by S. F. Twichell, Framingham.

45.—Gelding, "Charlie Hamilton," Messenger, 8 years old, weight, 1,150 lbs., owned by J. M. Davenport, Grafton.

46.—Gelding, "Frank Pierce," 9 years old, weight, 1,050 lbs., owned by Harrison Rogers, North Bridgewater.

47.—Mare, "Jennie," 6 years old, weight, 1,030 lbs., owned by W. H. Harrington, Salem.

48.—Gelding, "Billy," 4 years old, weight, 1,345 lbs., owned by G. B. Sanborn, Chelmsford.

No. 49.—Mare, "Lady Bradford," (foal at side,) 9 years old, weight, 1,200 lbs., owned by L. Maynard, Bradford.

50.—Mare, "Dollie," (foal at side,) 9 years old, weight, 1,200 lbs., owned by N. Cutter, West Medway.

51.—Gelding, "Lord Barrington," 5 years old, weight, 1,100 lbs., owned by Harvey Dodge, Sutton.

The committee on mares four years old and upwards, entered as horses for general utility, submitted the following

REPORT:

They award the first premium of $40, to R. S. Denny, of Clappville, for his mare "Pocahontas."

The second premium of $30, to Ginery Twichell, of Brookline, for his mare "Grace."

The third premium of $20, to T. J. Clark, of Cambridge, for his mare "Fanny."

The committee also recommend a fourth premium of $15, to be awarded to S. K. Jackson, of North Andover, for his mare "Farmer Girl." And the committee regret that there were not other premiums to be awarded as there were many others worthy of them, and among the number the mare "Queen Ann," belonging to A. Boynton, of Pepperell; and also a fast mare, "Jennie," belonging to W. H. Harrington, of Salem; and also a very fast mare, "Jenny Lind," belonging to Lyman Kinsley, of Canton; also, a fine mare, "Jenny," belonging to F. E. Faxon, of Boston; another fast mare, "Nahmeoka," belonging to H. M. Aiken, of Dorchester; also a fine young mare, "Lina," belonging to Samuel A. Rhodes, of Concord.

F. A. Billings.
L. Maynard.
Albert Nichols.

The awards on mares with foals at their side, entered as horses for general utility have been given on a preceding page, in the report of the judges on brood mares with foals at their side, entered as roadsters.

The committee on geldings four years old and upwards, entered as horses of general utility, submitted the following

REPORT:

They award the first premium of $40, to B. F. Danforth, of Boston, for his horse "Ned Morrill."

The second premium of $30, to Dr. E. A. Allen, of Randolph, for his horse "Tiger."

The third premium of $20, to C. W. Bellows, of Pepperell, for his horse "Rob Roy."

And the committee recommend a premium of $10, to be awarded to Col. Thomas Adams, of Roxbury, for his horse "Lyon." And also a gratuity of $5 to Henry Blanchard, of East Stoughton, for his young horse "Farmington Boy."

There were many other horses in this class entitled to consideration and commendation, particularly the "Morgan Rattler," belonging to F. Leonard, of East Bridgewater; and the "North Star," belonging to P. Moley, of Brighton; also, J. Wooster's horse, of Cambridge, "Jerry;" and the horse belonging to H. Rogers, of North Bridgewater, "Frank Pierce."

F. A. Billings.
L. Maynard.
Albert Nichols.

The premiums offered for horses, matched for road or carriage, were as follows:—

Sixteen hands high and upwards—1st premium, $40; 2d, $20; 3d, $10.
Less than sixteen hands—1st premium, $40; 2d, $20; 3d, $10.

The following entries were made in this division, viz.:—

No. 1.—Matched, "Green Mountain Boy," and "Vermont," 15¾ hands high, owned by A. Moulton, Framingham.
2.—Matched, "Tom," and "Jerry," weight, 1,950 lbs., 15½ hands high, owned by John D. W. Sherman, Dorchester.
3.—Matched, "Right Bower," and "Left Bower," Morgan, 4 years old, owned by W. R. Wheelock, Grafton.
4.—Matched, "Jennie," and "Kittie," 6 and 7 years old, owned by J. H. Chadwick, Roxbury.
5.—Matched, "Fannie," and "Charlie," 6 and 5 years old, owned by E. Potter, Braintree.
6.—Matched, 16 hands high, owned by William Barnard, Boston.
7.—Matched, 6 years old, owned by L. Gassett, Boston.
8.—Matched, 5 years old, Morgan, T. H. Smith, Boston.
9.—Matched, 7 years old, owned by A. Dearborn, Boston.
10.—Matched, 6 and 7 years old, 16 hands high, owned by George C. Riedel, Boston.
11.—Matched, 5 years old, 15 hands high, owned by W. Pierce, Charlestown.

No. 12.—Matched, 8 years old, weight, 2,540 lbs., 16 hands high, owned by E. B. Parker, Wrentham.
13.—Matched, 6 and 9 years old, owned by T. Adams, Roxbury.
14.—Matched, 7 and 9 years old, "Morgan," and "Peacock," owned by Capt. Robbins, South Boston.
15.—Matched "Jupiter" and "Juno," 5 and 6 years old, Black Hawk, Morgan and Messenger, owned by A. B. Hardy, Boston.
16.—Matched, 5 years old, weight, 2,240 lbs., owned by James P. Putnam, Fitchburg.
17.—Matched, 7 and 8 years old, weight, 1,820 lbs., owned by T. R. Lucy, Newburyport.

The judges on matched horses presented the following

REPORT:

The committee recommend the following awards :—

The first premium to No. 14, Capt. Robbins, of South Boston, for his "Morgan" and "Peacock."

The second, to No. 2, J. D. W. Sherman, of Dorchester, for his "Tom" and "Jerry."

The third, to No. 7, Lotan Gassett, of Boston, for his black horses.

They also recommend a gratuity of $10 to William R. Wheelock, of Grafton, for his four year old Morgan colts.

For the committee,

G. Twichell.

The premiums offered for draught horses were as follows :—

Matched—1st premium, $50 ; 2d, $25 ; 3d, 10.
Single—1st premium, $25 ; 2d, $15 ; 3d, $10.

The following is the list of entries of draught horses at the State Fair :—

No. 1.—Matched, Morgan, 8 years old, owned by John Brooks, Jr., Princeton.
2.—Matched, 9 years old, owned by Stevens & Holt, Boston.
3.—Matched, 6 and 9 years old, owned by W. C. S. Harrington, Watertown.
4.—Single, 9 years old, weight, 1,800 lbs., owned by John E Wilder, Chelsea.
5.—Matched, 7 years old, weight, 2,650 lbs,, owned by J. C. Chase, Cambridgeport.

No. 6.—Single, "Nigger," 11 years old, weight, 1,340 lbs., owned by Chase & Hunten, Cambridgeport.

7.—Single, "Tiger," 8 years old, weight, 1,450 lbs., owned by J. T. Keating, Boston.

8.—Matched, "Charlie" and "Dick," 12 and 7 years old, weight, 2,700 lbs., owned by J. T. Keating, Boston.

9.—Matched, "Gardner" and "Boy," 8 and 9 years old, weight, 2,900 lbs., owned by C. R. Cutter, Boston.

10.—Matched, 6 years old, owned by Reed & Bartlett, Charlestown.

11.—Matched, 6 and 7 years old, weight, 1,250 and 1,180 lbs., owned by T. S. Hews, Boston.

12.—Matched, 10 years old, 2,400 lbs., owned by C. Howe, Jr., Boston.

13.—Matched, owned by Norcross, Sanders & Co., Lowell.

14.—Single, 10 years old, weight 1,400 lbs., owned by Burrage, Stickney & Co., Cambridgeport.

The judges appointed under the above division having given the subject a careful consideration submitted the following

REPORT:

The first premium of $50, they award to Mr. T. S. Hews, of Boston, entry No. 11, for a pair of draught horses, ten years old, weighing 1,200 lbs., each.

The second premium of $25, they award to the City of Boston, entry No. 9, for a pair of draught horses, named "Gardner" and "Boy," eight or nine years old, weighing 2,900 lbs.

The third premium of $10 they award to Mr. C. Howe, Jr., of Boston, for a pair of draught horses, ten years old, weighing 1,200 lbs. each. Entry No. 12.

For single draught horses the committee award as follows:—

The first premium to Mr. John T. Keating, of Boston, entry No. 7, $25 to "Tiger," eight years old, weight 1,450 lbs.

The second premium to Burrage, Stickney & Co., Cambridgeport, entry No. 14, single draught horse, weighing 1,400 lbs., $15.

The third premium to Mr. John E. Wilder, of Chelsea, No. 4 entry, single draught horse, weighing 1,800 lbs., nine years old, $10.

In conclusion, we will take this opportunity to state that the trials were performed in a very satisfactory manner to us, and highly creditable to those under whose charge the work was performed.

Ezra Forristall,
Artemas L. Brooks,
William Forbes,
John Holland,
Judges.

The premiums offered for ponies, at the State Fair, were as follows:—

Matched, $20; Single, $10.

The entries of ponies were as follows:—

No. 1.—Gelding Pony, "Poppet," 9 years old, bred in Wales, owned by Mrs. J. Bryant, Jr., Boston, weight, 450 lbs.
2.—Calcutta Pony, "Nellie," 12 years old, weight, 334 lbs., owned by Charles Waite, Jr., Cambridgeport.
3.—"Archer," 9 years old, weight, 800 lbs., owned by P. Lally, South Boston.
4.—"Sorrel Billy," 11 years old, weight, 650 lbs., owned by James Kelly, South Boston.
5.—"Billy," 6 years old, weight, 650 lbs., owned by Thomas Flarrety, Boston.
6.—"Billy Button," 4 years old, weight, 825 lbs., owned by G. Bailey, South Natick.
7.—"Dollie," 6 years old, weight, 783 lbs., owned by H. Goodnow, Natick.
8.—"Topsy," 8 years old, owned by B. S. Pray, Boston.
9.—Span of ponies, Morgans, 7 years old, owned by G. M. Dexter, Boston.

The committee on ponies made the following

REPORT:

They award the premium on matched ponies to George M. Dexter, of Boston, for his pair of Morgan ponies.

The premium on single ponies, to Mrs. John Bryant, Jr., of Boston, for her Welch pony, "Poppet," a very superior animal.

For the committee,
S. C. OLIVER, *Chairman.*

The following premiums were offered on saddle horses:—

1st premium, $30; 2d, $20; 3d, $10.

The following entries were made of saddle horses:—

No. 1.—"Pet," one-half English, 5 years old, owned by George G. Sampson, Boston.
2.—"Boston," 7 years old, weight, 970 lbs., owned by Charles Boynton, Georgetown.
3.—"Bijou," English and Morgan, 8 years old, weight, 720 lbs., owned by A. B. Hardy, Brookline.

No. 4.—" Hoosier," 6 years old, weight, 600 lbs., owned by C. H. Mills, Boston.
5.—" Wizard," 6 years old, owned by S. Crockett, Boston.
6.—" Comet," French and Morgan, 5 years old, weight, 983 lbs., owned by Joshua Wilkins, Dorchester.
7.—" Charlie," French and English, 6 years old, weight, 850 lbs., owned by Amasa Clapp, Dorchester.
8.—" Flying Morgan," 6 years old, weight, 950 lbs., owned by R. S. Denny, Clappville.
9.—" Lady Mayfly," 10 years old, owned, by P. M. Kibby, Boston.
10.—" Peacock," 7 years old, weight, 1,125 lbs., owned by J. Gilson, West Cambridge.
11.—" Billy Morgan," 4 years old, weight, 900 lbs., owned by E. B. Metcalf, Franklin.
12.—" Fannie," 5 years old, weight, 900 lbs., owned by E. B. Metcalf, Franklin.

The committee on saddle horses presented the following

REPORT:

They award the first premium to R. S. Denny, of Clappville, for his " Flying Morgan."

The second, to Charles Boynton, of Georgetown, for his horse " Boston."

The third, to S. Crockett, Boston, for his horse, " Weazle."

The committee would recommend that diplomas be awarded to Joshua Wilkins, of Dorchester, for his horse, " Comet," and to J. Gilson, of West Cambridge, for his horse, " Peacock."

For the committee,

SAMUEL C. OLIVER.

SHEEP.

Probably no domestic animal is more widely diffused over the civilized world than the sheep. It has been under the subjection of man from the earliest antiquity, and still continues to be of the utmost importance to him both in an individual and national point of view.

It has been supposed by some naturalists that the domestic sheep was originally derived from the wild species, several of which still exist in different parts of the world, as the argali of central and northern Asia, the musmon found in the mountains of the Caucasus and elsewhere, as in the islands of Crete and Cyprus, the Rocky Mountain sheep, found on the lofty mountain ranges of this continent, and some others. If this were the origin of our domestic sheep it is certain that it must have been subjected to man and its natural habits very materially changed, at a very early period; and the contrary supposition, that the wild species originated either from an animal very like the domestic sheep in its general characteristics, less wild and active than the present wild species, and less docile perhaps than the domestic sheep, is equally probable. However this may be we know that the early descendants of Adam had their flocks, and that the pastoral or shepherd's life was that most generally followed by the early patriarchs, while among the later nations, the Greeks, the Romans and others, the raising and keeping of sheep for the supply of food and clothing, was always esteemed of the highest importance.

Of the innumerable varieties of the domestic sheep but few are known among us. The interest in this branch of husbandry has greatly decreased even within the last few years, the farmer's attention having been turned into other channels from a conviction that we could not compete with others in the raising of wool. The extent to which the keeping of sheep has fallen off, is apparent enough from the following official statistics. In 1845 there were 33,875 Saxony sheep in this State, yielding 93,218 pounds of wool, fine, of course, the Saxon having been improved by the cross with the Merino. In 1855 this number had decreased to 6,806 Saxon sheep, yielding 14,549 pounds of wool. In 1845 there were 165,428 Merino sheep in this State, yielding 487,050 pounds of wool. In 1855 the number of Merino sheep had decreased to 65,584, yielding only 188,504 pounds of wool. In 1845 there were of all other sheep in the State, besides the Saxon and Merinos, 155,640, yielding 435,962 pounds of wool, and these numbers had decreased in 1855 to 72,825 sheep of all kinds other than Saxons and Merinos, yielding 213,103 pounds of wool, while the aggregate value of all sheep in the State in 1845 was $558,284, and in 1855 but $309,843. The aggregate value of all the wool raised in the State had decreased in the same time from $365,136 to $155,046, showing a very large falling off in every respect in the course of only ten years. Had the fine-woolled sheep alone decreased in numbers, this great falling off might be explained on the supposition that our farmers were turning their attention more to the raising of mutton to supply an active and ever increasing demand in our market, but statistics show an absolute and large decrease of all kinds of sheep. In the eastern section of the State far less attention is now, and has been, paid to this important branch of husbandry, than in the western and midland counties; the chief object of the few who keep sheep being to profit from the carcase and the sale of lambs in the eastern, and by the fleece in the western.

The breeds among us are exceedingly limited in number, though the crosses and grades are innumerable. We have the Leicesters, the Cotswolds, the South Downs and the Oxfordshire Downs among the long and middle-woolled, and the Merinos and their various grades, as the French, Silesian and Saxon Merinos among the fine-woolled. Occasionally a few of some other description may be met with, introduced, or kept from curiosity, but the above includes all the varieties that are kept to any extent except the large number of "natives" made up of unknown crosses.

The new Leicesters may be said to have had their origin with the experiments of Robert Bakewell, undertaken in 1755, and continued successfully through a long course of years. From him they are sometimes called Bakewells, and sometimes the Dishley breed, from the name of his place. The manner in which he improved and remodelled the old Leicesters was kept a profound secret, and no one knows to this day how far he used other breeds to obtain crosses, nor how far he carried his crosses, but he seems to have "perfectly understood the relation which exists between the external form of an animal and its aptitude to become fat in a short time. He saw that this relation did not depend on size, nor, in the case of the sheep, on the power of the individual to yield a large quantity of wool." With him size of body and quantity of wool were but secondary objects, while his eye was constantly directed to the form best adapted to yield the largest quantity of fat and muscle, laid on the best parts, with the least offal. He bred with the most careful selection, often from very close relations, and regarded delicacy of constitution incident to such a system, as of little importance compared with a tendency to fatten and mature early, and these last objects he attained in an eminent degree and fixed them as permanent characteristics of the breed.

The new Leicesters have fine heads, wide nostrils, with eyes full and quick, and ears thin and pricked, the whole expression of the face and head pleasing and mild. The head is hornless, long, small, tapering to the muzzle and projecting horizontally forwards. The neck is broad and full at the base or chest, tapering gradually towards the head and very fine at the junction of the head and neck. A line drawn from the top of the head to the rump is horizontal. The shoulders are broad and round, the breast broad and full, the arm fleshy down to the knee, the legs small, standing wide apart, and bare of wool. The chest and barrel are round and deep, well ribbed up, the quarters long and full, the muscles extending down to the hock, the thighs wide and full, legs of medium length, skin soft and elastic, covered with long, white, fine wool.

The Leicesters are beautiful and symmetrical in form, mature earlier than any other breed, and produce, perhaps, more mutton and wool in proportion to the food they consume than other breeds; but the amount of tallow is generally very small, and the carcase is not a favorite in the market, the fat not being well mixed in with the lean. The pure new Leicester can hardly be said to be a very profitable breed either for the breeder, the feeder or the butcher, but for improving other breeds the pure new Leicester ram is, perhaps, unrivalled, and most admirable crosses are obtained from him with good ewes of other breeds. It has been said by a very experienced and practical judge, that the "Leicester sheep can improve all other breeds, but none can improve them," and the practice of putting the long-woolled Liecester rams to short-woolled ewes has become very common. South Down ewes are more hardy and prolific and are far better nurses than the Leicesters. The size of the offspring of the Leicester ram and the South Down ewe, will not fall much below the larger sire, if well fed, while the mutton, taking the tendency to fatness of the sire, and the high flavor, juiciness and good quality of the dam, will sell at high prices.

The Cotswolds form a large breed of sheep with a long and heavy fleece. They are a cross of an old and celebrated breed with the new Leicester, but as they have now been kept distinct for many years, their characteristics are well fixed. The old Cotswolds or Gloucestershire sheep were coarser in form and larger in body than the improved Cotswolds of the present day, but the latter are somewhat larger, hardier, more prolific and better milkers than the pure new Leicesters, and they are, with many, taking the place of Leicesters, on account of their superiority in these respects and their adaptation to common treatment. That the quality of their mutton is better than that of the Leicester is seen in the higher price it commands in the market. The new or improved Oxfordshire, is only another name for the improved Cotswold, the result of careful selection. The new Oxfordshires are somewhat larger sized, and have a great tendency to fatten on account of their wide frames, and quietness of disposition, and the open texture of their flesh. The taste of many breeders, at the present time, runs very much to large size, and in the opinion of some, the largest sized sheep are most profitable ; but it depends much on the richness and abundance of food, and with many of us who have but short pastures the largest sized sheep might prove any thing but profitable.

The South Down is one of the oldest and purest breeds, tracing its origin even beyond the time of William the Conqueror. It is middle-woolled, though so good was the fleece that it once ranked as fine wool and was used for carding, till a large supply of superior fine wool from the continent took its place. The South Downs have felt the hand of improvement like most other breeds of animals in Great Britain, and in point of form and symmetry and fineness of bone they far surpass their ancestors of a half century ago. They possess also greater tendency to fatten, arrive at maturity earlier, and attain greater weights, still maintaining great hardihood of constitution and being able to subsist on poor pasture and hard fare. They will do well where many other breeds would die or deteriorate. The fineness of the fleece of the South Downs is only a secondary object generally, and it is as an animal profitable for the butcher that it is most bred among us. They lay on fat inside, where it is mixed with the lean to a greater extent than the Leicesters, and hence are more popular with the butchers, particularly in the London market.

The head of the South Down is small and hornless, the face dark gray, of medium length, the eye bright and full, the neck thin towards the head, broad and high towards the shoulders, the breast wide and deep and projecting well forwards between the fore legs. The back is straight, flat from the shoulders to the setting on of the tail, rump long and wide, the legs of medium length, dark color or speckled, the wool short, close, curled and fine. The meat of the South Down is fine grained, and remarkable for its fine flavor and juiciness, cutting up well into handsome joints. They feed easily and lay on large weights of tallow.

The South Down is a favorite in eastern Massachusetts, where it is raised chiefly for the shambles. The ewes put to Cotswold or Leicester rams produce an excellent first cross, in point of flesh and fleece, coming early to maturity and arriving at great weight, bringing more per pound than either Leicesters or Cotswolds. It is unquestionably one of our most useful breeds of sheep and adapted eminently to our wants and situation, and consequently thought to be more profitable for us than the fine-woolled breeds. They have "a patience of occasional short keep and an endurance of hard stocking, equal to any other sheep." They are very healthy and free from rot and other diseases.

The Oxfordshire Downs are the result of a judicious cross of the Cotswold with the pure South Down, and though it was formed at a comparatively recent date, it is claimed that its characteristics are so completely fixed as to entitle it to the credit of forming a breed. The specimens of this breed now in this State were mostly imported or bred by R. S. Fay, Esq., of Lynn. These fine animals inherit the size of the larger Cotswolds, greatly exceeding in weight the pure South Downs, while the fleece has a somewhat coarser and stronger fibre, but heavier by more than a third, than that of the pure bred South Down. They take from the South Downs a beautiful roundness and symmetry of form and fulness of muscular development, laying their flesh and fat on the more valuable parts, while the brown or gray face and leg seem to distinguish them as "South Downs enlarged and improved." Both the ewes and the bucks are larger than the South Down. These sheep seem to offer great facilities for the improvement of our middle-woolled breeds. They are very quiet and docile in their habits, and have proved themselves perfectly hardy.

The breeds mentioned above and their various grades, comprise the long and middle-woolled varieties known among us.

The premiums offered for long-woolled sheep were as follows :—

BUCKS.

Two years old and over—1st premium, $10 ; 2d, $7 ; 3d, $5.
Under two years—1st premium, $10 ; 2d, $7 ; 3d, $5.

The premiums for ewes not less than three in number, were the same as for bucks of the same ages, and the premiums for middle-woolled bucks and ewes the same as for long-woolled, and for coarse and middle-woolled grade bucks and ewes, two years old and over, the same.

The entries of long-woolled sheep were as follows :—

No. 1.—One buck, Cotswold, over two years old, owned by S. W. Buffum, Winchester, N. H.
2.—One buck, New Oxfordshire, over two years old, owned by S. W. Buffum, Winchester, N. H.
3.—One buck, New Oxfordshire, under two years old, owned by S. W. Buffum, Winchester, N. H.
4.—Five ewes, new Oxfordshire, under two years old, owned by S. W. Buffum, Winchester, N. H.
5.—Three ewes, over two years old, owned by L. B. Morse, Boston.
6.—Four ewes, under two years old, owned by L. B. Morse, Boston.
7.—One buck, Cotswold, owned by Baldwin & Whittier, Montpelier, Vt.
8.—Flock of lambs, Cotswold, owned by Baldwin & Whittier, Montpelier, Vt.
9.—One buck, Cotswold, owned by Thomas J. Field, Northfield.
10.—Flock of ewes, Cotswold, over two years old, owned by Thomas J. Field, Northfield.
11.—Flock of ewes, over two years old, owned by Thomas J. Field, Northfield.
12.—Flock of ewes, Cotswold, under two years old, owned by Thomas J. Field, Northfield.
13.—Flock of lambs, Cotswold, owned by Thomas J. Field, Northfield.

The following is a list of entries of middle-woolled sheep :—

No. 1.—Five ewes, Oxfordshire Downs, owned by Thomas Motley, Jr., West Roxbury.
2.—Ewe lambs, Oxfordshire Downs, owned by Thomas Motley, Jr., West Roxbury.
3.—Ram lambs, Oxfordshire Downs, owned by Thomas Motley, West Roxbury.

No. 4.—Ram, over two years old, owned by Walter Field, Northfield.
5.—One buck, under two years, owned by Thomas J. Field, Northfield.
6.—One buck, under two years old, South Down, owned by A. S. Lewis, Framingham.

The entries of grade sheep were as follows:—

No. 1—One buck and two ewes, eighteen months old, and one ewe twenty-eight months old, French grade, owned by Charles W. Cushing, South Hingham.
2.—One buck, over two years old, South Down and Leicester, owned by R. S. Denny, Clappville.
3.—One buck, two years old, Smyrna, owned by Albert Kelly, Auburn.
4.—Two ewes, five months old, South Down and Leicester, owned by R. S. Denny, Clappville.
5.—Six ewes, three under, and three over two years old, owned by Albert Kelly, Auburn.
6.—One buck, native, one year old, owned by Albert Kelly, Auburn.
7.—Two bucks, over two years old, Silesian and Spanish, owned by George Campbell, Westminster, Vt.
8.—Three ewes, under two years old, owned by L. B. Morse, Boston.

The judges on long-woolled, middle-woolled, and grade long or middle-woolled sheep, presented the following

REPORT:

The judges of sheep, to whose inspection was assigned the long-woolled, middle-woolled, and grade varieties, respectfully report:—

They found in their department the following entries: long-woolled, 13; middle-woolled, 6; grade or cross, 8; total, 27; and after careful examination of the folds, and attention to their instructions, made the following awards:—

Long-woolled.—Bucks, two years old and over, 1st premium to Thomas J. Field, of Northfield.

Ewes, over two years, 1st premium, to Thomas J. Field; 2d, to L. B. Morse, of Boston; 3d, to Thomas J. Field.

Ewes, under two years, 1st premium to L. B. Morse; 2d, to Thomas J. Field; 3d, to Thomas J. Field.

Middle-woolled.—Bucks, over two years, 1st premium to Walter Field, of Northfield.

Bucks, under two years, 1st premium to Thomas J. Field, 2d, to Thomas Motley, Jr., of West Roxbury; 3d, to A. S. Lewis, of Framingham.

Ewes, over two years, 1st premium to Thomas Motley, Jr.

Ewes, under two years, 2d, to Thomas Motley, Jr.

Grade, or Cross Breeds.—Bucks, over two years, 1st premium to R. S. Denny, of Clappville.

Bucks, under two years, 1st premium to A. Kelly, of Auburn ; 2d, to C. W. Cushing, of South Hingham.

Ewes, over two years, 3d premium to A. Kelly.

Sheep out of the State.—Messrs. Baldwin & Whittier, of Montpelier, Vt., exhibited a Cotswold buck, which has not its equal, perhaps, in the New England States. Weight, 350 lbs., and beautifully proportioned. Deacon S. F. Buffum, of Winchester, N. H., also exhibited specimens from his fold ; among which was a very fine New Oxfordshire buck. To each of these animals your judges could not refrain from awarding a discretionary premium of $10, their highest award, accompanied with their thanks to the above mentioned gentlemen for their notable additions to the show of stock.

In assigning our reasons for the foregoing awards, we can sum up all in very few words: the ribboned animals were, in our judgment, the BEST SHEEP in the folds ; attention being paid in making our verdict, to the fineness of the fleece and its adaptedness for working ; and also to the points and qualities of the animals for the shambles.

Mr. Cushing, of South Hingham, informed us that he gave his sheep no grain, except a little to his bearing ewes in the spring. The sheep he exhibited were a fine lot, thrifty and hardy, and their shepherd apparently inspirited with a laudable ambition to excel in his occupation. This was also the case with Mr. Kelly, of Auburn, whose stock showed their master's care and attention to their well-being. He showed us a fine lot of thrifty-conditioned ewes, every one of which produced last spring twins, and one of them triplet lambs. We would make favorable mention of a full-blood Smyrna buck, two years old, also exhibited by Mr. Kelly ; average weight of fleece, twenty pounds. Also, of a couple of ewe lambs entered by Mr. Denny, of Clappville, (Leicester,) very fine animals.

A remark to one of the shepherds by one of the judges: "Your sheep are your most profitable stock," is one which commends itself to the consideration of every practical, progressive farmer. The day has gone by in Massachusetts, when every farmer, with here and there an exception, kept *some* sheep, from a "stocking-wool" stock, to a flock of scores. The unsettled and see-sawing policy of government in years agone, on the "tariff" question, may, perhaps, be looked to as the primary cause of this great decline in our wool-growing interest. There is a proverb common with the people, "keep a thing seven years and you will want it." Those of our shepherds who have not "died out" in their occupation, are, at this day, undoubtedly among our most thriving stock-raisers. Again, we have known farmers to assign as a reason for not keeping sheep, the difficulty and vexation experienced in *keeping* them within bounds. Sheep will thrive upon our stony and poorest pastures, where the bite is short but sweet, and where our neat stock which cannot nibble, would barely "live, move, and have being." The natural fencing material of such pastures lies at hand upon the ground—stones. True, sheep are great climbers, and will scale a common stone wall at will, with the ease and coolness with which a Yankee soldier will mount an enemy's parapet; but the simple addition to such fence of a rider of poles, supported by stakes, will turn the sheep and keep them in *statu quo.* No stock which a farmer keeps better tells the story of its owner's care, than the bleating flock. No stock makes a finer show than a lot of comely and well-conditioned sheep. And, on the contrary, there is no meaner looking animal, perhaps, than a poor, "run down," decrepid sheep. A Calvin Edson, or death on the pale horse, would suffer in comparison for miserableness.

Many shepherds are wont to trust too much to the natural hardihood and warm coat of the sheep, as sufficient protection in our severe months. This reliance is not misplaced when sheep are ranging in dry, cold weather; but need any shepherd be told that his flock should be provided with dry and comfortable shelter, at this season, during their hours of rest, and from all cold, driving storms. And yet we have known large flocks in fine order at the commencement of our late autumnal storms, to fall off rapidly in condition, and feed abundantly the winter crows, and manure their improvident master's fields with their carcasses, by diseases engendered by inattention to proper shelter. Dear manure, that!

Great credit is due to Messrs. Thomas J. Field, of Northfield, Thomas Motley, Jr., of West Roxbury, and to Messrs. Kelly, Morse, and others, for the numbers of their respective flocks exhibited. They are all enterprising and careful shepherds, and we respectfully invite them to give to the public their personal experience and observation in wool-growing, respectively.

Mr. Motley's sheep were mostly "Oxfordshire Downs," an English cross, originally, but of so long standing as to be considered now, we believe, a distinct breed.

Your chairman congratulates himself and the Board, on the valuable counsel and services rendered by his peers in judgment, particularly the gentlemen from Norfolk and Essex counties, than whom no better judges of stock generally, and of sheep particularly, can perhaps be found in the State.

JOSIAH D. CANNING,
TRUMAN CLARK,
JOSEPH NEWELL,
JOSEPH B. CALLENDER,
Judges.

Our " native " sheep derive their origin from sources as various as our native cattle and horses. The date of the earliest importation into Massachusetts is not known, but as sheep are known to have been kept on some of the islands in Boston harbor in 1633, they must have been introduced in, or previous to that year. In the plantation at Piscataqua already alluded to, there were ninety-two sheep in 1635, and as early as 1650 there were about four hundred in Charlestown alone, and probably many more in the vicinity of Boston. Sheep were taken to the island of Nantucket in 1660, at the time of the first settlement, and the raising of wool was continued with much spirit down to a comparatively recent date, the number of sheep ranging from six to ten thousand. It is now nearly abandoned there.

The fine-woolled sheep of this State are, for the most part pure or grade merinos, such as the Saxons, Silesian, and French merinos, and crosses of these with coarser or middle-woolled varieties.

The merinos have been known in Spain for many centuries. Even the ancient Greeks are said to have imported them from the peninsula during the palmy days of Athens, and it is reported that a single buck sometimes cost to import, no less than a talent, or twelve hundred dollars, while the Romans for a long time used the fine and beautiful wool for the manufacture of their finest fabrics till the later days of the empire, when the luxurious eastern silks were introduced. But the produce of its flocks formed for many years the chief article of export, and of course the principal source of the wealth of Spain. The merino is unrivalled for the fineness of its wool. No English breed can compete with it in this respect, and in fact the breeding of fine-woolled sheep has been almost entirely abandoned by the English farmer for the more profitable business of breeding for the carcass.

Many of the northern states of Europe began early to devote attention to the raising of wool, but the first country favored with the use of merinos, was Sweden, to which a small flock was carried as early as 1723. The experiment succeeded, the government soon offering generous premiums to the breeders of fine-woolled sheep and on the sales of the best wool, and the encouragement thus extended, succeeded to such an extent that the importation of fine wool soon ceased, and in 1764 there were no less than 65,000 pure merino sheep in Sweden, and 23,000 grades, whose wool had been greatly improved by the merino cross. The merino, though taken from the south to the north of Europe, has somewhat increased in size and hardihood, preserving its form and characteristics, and the wool seems to have lost none of its fineness.

The improvement of German wools dates from the introduction of Merino sheep. At the end of the seven years' war, in 1765, the Elector of Saxony procured a hundred rams and the same number of ewes from the best flocks in Spain, and placed a part of them on his own estates, near Dresden, and the rest in various parts of Saxony, for the purpose of improving the original Saxon sheep. These sheep were soon found to preserve their high character, producing wool equal to the best fleeces of Spain, while the cross with the best original breed of Saxony greatly improved its fleece. The utmost care was taken in the selection of males for breeding for the fine quality of wool, and the wool in course of time came to be superior even to the wool of Spain, and commands a better price, standing, as it does, unrivalled for cloths of the finest texture. The first importation was soon followed by others. From these early importations the Merinos rapidly spread over every country of Europe, and received many local names which they bear to this day. Some of these subvarieties, as the Saxons and Silesians, have been imported to considerable extent into this country. The wool of Silesia ranks very high, surpassing even that of the finest migratory sheep of the peninsula. The fleece of the fully developed Silesian Merino possesses great fineness, evenness, thickness and weight, being compact over the whole body.

The first importation of pure Merinos into Massachusetts took place in 1793. It consisted of two ewes and one ram. At that time no one in the vicinity of Boston understood or appreciated their value, and as the gentleman who imported them was obliged to revisit Europe, he gave them to Mr. Craigie, of Cambridge, who, not knowing their value, soon ate them up. Not many years after, Mr. Craigie having learned something more of Merinos, paid no less than a thousand dollars for a Merino buck. Another small importation was made in 1802, and again in 1809 or 1810, and a few years after a complete Merino fever ran through the whole farming community.

The Merinos are small, with rather flat sides, narrow chests and long legs. The skin is of a reddish tinge and loose under the throat, which is generally considered as indicative of good fleece. The French Merinos, particularly, possess very great looseness of skin about the throat, so much as to exhibit large folds or wrinkles. Their wool is very close and thick, and is so filled with oil as to shed the water and protect the animal to considerable extent from the effects of rain. They are bred exclusively for the fineness of their wool, and have few other excellences to recommend them. Their carcase is small, they arrive late at maturity, and are not very good nurses, while they carry too much flesh on parts of little value to the butcher, and fatten too slowly for the farmer who breeds for the shambles. For these reasons, probably, more than any other, the number of fine-woolled sheep kept in this State has greatly diminished, as already seen, and the farmers are now turning their attention more to the raising of coarser or middle-woolled varieties, which arrive at maturity earlier and attain to greater weights.

The premiums offered for fine-woolled sheep at the State Fair, were, for Saxon bucks and ewes two years old and over, and also for bucks and ewes under two years, the same as for long-woolled sheep of the same ages, and the same for Silesian Merinos and for French and Spanish Merinos, not less than three ewes being required on exhibition.

There were no entries of Saxons. The entries of Silesian Merinos were as follows:—

No. 1.—Six ewes, over two years old, owned by George Campbell, Westminster, Vt.

2.—Three ewes, under two years old, owned by George Campbell, Westminster, Vt.

No. 3.—Three ewes, lambs, owned by George Campbell, Westminster, Vt.
4.—One buck, over two years old, owned by George Campbell, Westminster, Vt.
5.—One buck, under two years old, owned by George Campbell, Westminster, Vt.
6.—Flock of buck lambs, owned by George Campbell, Westminster, Vt.

There was but one entry of French Merinos, and that of one buck, two years old, owned by S. W. Buffum, of Winchester, N. H.

The entries of Spanish Merinos were as follows:—

No. 1.—Ewes, one pen, owned by Walter Field, Northfield.
2.—Ewes, one pen, owned by Walter Field, Northfield.
3.—Three bucks, two years old and over, owned by George Campbell, Westminster, Vt.
4.—Three bucks, under two years old, owned by George Campbell, Westminster, Vt.
5.—Flock of buck lambs, owned by George Campbell, Westminster, Vt.
6.—Six ewes, over two years old, owned by George Campbell, Westminster, Vt.
7.—Three ewes, under two years old, owned by George Campbell, Westminster, Vt.
8.—Six ewe lambs, owned by George Campbell, Westminster, Vt.

The committee on fine-woolled sheep submitted the following

REPORT:

There was but one flock in this class entered for premium from our own State. These were exhibited by Mr. Field, of Northfield, and consisted of six ewes of the Spanish merino breed. Your committee did not consider them possessed of such superiority as to entitle them to the first premium. They have, therefore, awarded to Mr. Field, the second premium of $7.

Mr George Campbell of Westminster, Vt., exhibited forty-eight sheep consisting of Spanish and Silesian merinos. These were of fine quality, and unquestionably of pure blood, many of them having been selected and imported by Mr. Campbell.

Your committee were well aware that they had no right to award premiums to animals from other States. They therefore recommend to your Board that Mr. Campbell be awarded the following premiums:—

For his Silesian bucks, $15, and a diploma.

For his Silesian ewes, $10, and a diploma.

For his Spanish Bucks, $15, and a diploma.

For his Spanish ewes, $10, and a diploma.

Mr. Buffum, of New Hampshire, exhibited a fine French merino buck. To this animal, like the last, they could not award a premium. They therefore recommend that Mr. Buffum be presented with a diploma for his two years old buck.

For the committee,
JOHN KITTREDGE.

The premiums offered for fat sheep were as follows :—

Two years old and over—1st premium, $10 ; 2d, $5.
Under two years—1st premium, $10 ; 2d, $5.

The following is a list of entries of fat sheep :—

No. 1.—Pen of five, owned by John W. Hollis, Brighton.
2.—Pen of two, owned by Thomas J. Field, Northfield.
3.—Pen of three, one year old, owned by J. W. Hollis, Brighton.
4.—Pen of fat lambs, owned by J. W. Hollis, Brighton.

The committee on fat sheep, consisting of Messrs. Moses Newell, of West Newbury, Walter Field, of Northfield, John G. Mudge, of Petersham, and Alfred Kittredge, of Haverhill, submitted the following

REPORT:

Only two entries of fat sheep, over two years old, were shown to your committee. No statement was made relative to the manner in which the sheep had been fed or kept.

The committee were therefore confined to the comparative fatness of the sheep offered for exhibition, and they award the first and second premium for sheep, over two years old, to Thomas J. Field, of Northfield.

Your committee also examined three sheep over one year old and a lot of lambs. There was no information relative to those sheep and lambs given to your committee, and they award the first and second premiums for sheep, one year old, to J. W. Hollis, Esq., of Brighton.

By order of the committee,
ALFRED KITTREDGE, *Chairman.*

SWINE

Formed the fourth class in the arrangement of the schedule of premiums, the third being occupied by sheep.

According to official statistics returned in 1845, there were then 104,740 swine in this State, valued at $917,435. For some reason or other this number had fallen off to such an extent, that in 1855 there were but 51,113, valued at $581,536.71. But though the number of these useful animals has so much diminished, there can be no doubt that the quality has improved with the greatly increased interest in breeding now generally manifested. The specimens entered in the division of larger breeds, were mostly Essex. The old Essex was a small hog, but by crossing with the Neapolitan and the black Chinese, Lord Western, of Essex, produced an admirable breed known as the improved Essex, which possesses great merits, and has often carried off the palm from the Berkshires, during the last ten years. Their color is black, the nose short, the neck thick and short, with small, sharp ears, the limbs short and fine boned. They fatten easily, and their flesh is well mixed and fine grained. On good feed they arrive at considerable weight; but rarely, when fat, exceed 300 pounds, and would scarcely average over 250 pounds. Though the improved Essex is black in color, yet the skin is said to dress quite white in scalding. The Essex pigs have many of the fine points of the Suffolks.

The Cumberland is a very fine breed, but their origin is not very well known. Our larger breeds are mostly of the Berkshire or Middlesex or Mackay stock, or crosses with them.

The farmer's object is to breed for profit, generally, but the most profitable hog to one man, in one locality, may not be the most profitable to another under different circumstances. As a general thing, however, the farmer wants more size than the pure Suffolk attains, united with the fine points and the feeding qualities of the Suffolks. The pure Suffolk boar with a large and thrifty sow, generally produces a valuable and profitable animal, much better adapted to our wants, than the pure Suffolk.

The premiums offered for swine of large breed, were as follows: For boars—

Two years old and upwards—1st premium $10; 2d, $8; 3d, $5.
One year old and upwards—1st premium, $8; 2d, $5; 3d, $3.

For sows of the same ages, the same premiums were offered. The following is a list of entries of swine of large breed :—

No. 1.—Breeding sow, two years old and upwards, White Essex, owned by William Thompson, North Bridgewater.
2.—Boar, three years old, White Essex, owned by William Thompson, North Bridgewater.
3.—Boar, three and a half years old, Cumberland, (imported,) owned by Joseph D. Ludden, Braintree.
4.—One sow, two years old and over, Columbia County, owned by Asa G. Sheldon, Wilmington.
5.—Sow, three years and six months old, Suffolk and Middlesex, owned by G. F. Darling, West Needham.
6.—Boar, one year and three months old, Suffolk and Middlesex, owned by G. F. Darling, West Needham.

The awards of the judges in this division, consisting of Samuel T. Payson, of Newburyport, Orrin Curtis, of Sheffield, Cephas Porter, of Leverett, Horace Sheldon, of Wilmington, Joseph A. Harwood, of Littleton, were as follows :—

On boars, two years old and over, a premium of $5, to Joseph D. Ludden, of Braintree. Boars, one year old and under two, the first premium to Leonard Hoar, of Lincoln ; the second to G. F. Darling, of West Needham.

On sows, two years old and upwards, the first premium to Asa G. Sheldon, of Wilmington, the second to G. F. Darling, of West Needham, for his sow Suffolk and Middlesex ; the third to William Thompson, of North Bridgewater, for his white Essex sow.

For the committee,
SAMUEL T. PAYSON.

For swine of small breeds the same premiums were offered as for the larger breed.

The entries of the small breeds were as follows :—

No. 1.—Boar, one year and four months old, Suffolk, weighed, 275 lbs., owned by N. W. Starbird, Malden.
2.—Breeding sow, two years and six months old, Suffolk, owned by Harvey Dodge, Sutton.
3.—Boar, two years old and over, Suffolk, owned by J. & I. Stickney, Boston.
4.—Sow, two years old and over, Suffolk, owned by J. & I. Stickney, Boston.

No. 5.—Sow, two years old, owned by Joseph Kittredge, North Andover.
6.—Sow, one year old, owned by Joseph Kittredge, North Andover.
7.—Sow, two years old and over, owned by O. Clark, Boston.
8.—Boar, two years old, Suffolk, owned by J. Kittredge, North Andover.
9.—Sow, two years old, Suffolk, owned by J. Kittredge, North Andover.
10.—Boar, one year old, Essex, owned by David Wilder, North Bridgewater.
11.—Two sows, one year old and over, Essex, owned by O. Clark, Boston.

The committee on small breed of swine made the following

REPORT:

The entries were made by six exhibitors of twelve animals. Of the first grade, were two boars and five sows of the Suffolk breed. Of the second grade, were one boar and two sows of the Improved Essex breed, and one boar and one sow of the Suffolk. All these animals were represented to be of pure blood, and nearly all were of superior character. They were all kept for breeders; and the decisions of the committee were made with reference to this fact. The Suffolks, with one exception, as to color, were entirely white, well proportioned in frame, and docile and quiet in disposition. With individual peculiarities, they had thin skins, fine hair, short legs, small bones, neat limbs, short snouts, and broad, straight backs. They had been raised and kept on cheap food, and exhibited sufficient proof of what we deem essential to the thrift and health of the hog,—a close regard, on the part of his owner, to his cleanliness and comfort. The usual tendency of this breed to fatten more easily than is desirable in breeding animals, had been wisely checked by moderate feeding; and with several of them, by pasturing during the warm season; a practice, we regard as of great utility in other respects, besides economy of feeding. It affords room for exercise, the advantage of better air and light, and contributes to form muscle and give due proportion to the frame.

The Improved Essex boar, though smaller than the Suffolks, possesses many of their best characteristics and is a superior animal of its class. It is well formed, with round body, thin hair, small bones and neat limbs, is perfectly docile, and disposed to fatten readily. The color of this breed may be objectionable, in the opinion of some farmers, but its flesh is found to be exceedingly delicate and well flavored. It is said to be almost exempt from cutaneous disease, which is a strong recommendation; and it will prove, we think, valuable, both as a distinct breed and for crossing with others.

Without extending this report, as we may do hereafter, we proceed to award the premiums, at our disposal, as follows:—

For boars, two years old and upwards—

To J. & I. Stickney, Boston, for Suffolk boar, No. 3, 1st premium, $10.

To Joseph Kittredge, Andover, for same, No. 8, 2d premium, $8.

For sows, two years old and upwards—

To Harvey Dodge, Sutton, for Suffolk sow, No. 2, 1st premium, $10.

To J. & I. Stickney, Boston, for same No. 4, 2d premium, $8.

To Joseph Kittredge, Andover, for same, No. 5, 3d premium, $5.

For boars, one year old and upwards—

To David Wilder, North Bridgewater, for Improved Essex boar, No. 10, 1st premium, $8.

To N. W. Starbird, Malden, for Suffolk boar, No. 1, 3d premium, $3.

For sows, one year old and upwards—

To Joseph Kittredge, Andover, for Suffolk sow, No. 6, 2d premium, $5.

To O. Clark, Boston, for Essex sow, No. 11, 3d premium, $3.

For the committee,

Charles C. Sewall.

The premiums offered for boars and sows of other breeds were the same as those for large and small breeds. The entries of other breeds were as follows:—

No. 1.—Boar, three-fourths Suffolk, weighed 500 lbs., owned by Charles R. Damon, Cochituate.

2.—Sow and pigs, three-fourths Suffolk, weighed 350 lbs., owned by Charles R. Damon, Cochituate.

3.—Boar, one year and four months old, Suffolk and Middlesex, owned by Leonard Hoar, Lincoln.

4.—Two sows, with pigs, one over two years old, and one over one year, Suffolk and Mackay, owned by Asa G. Sheldon, Wilmington.

The committee on this division awarded the first premium of $10, to Charles R. Damon, of Cochituate, for the best boar over two years old, and the first premium of $10, to Asa G. Sheldon, of Wilmington, for the best sow over two years old. The other premiums were not awarded.

The premiums offered on pigs, not less than six in a litter, were as follows: six months old and under ten, first premium, $10; second premium, $8. Under six months, first premium, $8; second premium, $5.

The entries of pigs were as follows:—

No. 1.—Twelve pigs, five weeks old, White Essex, owned by William Thompson, North Bridgewater.
2.—Seven pigs, five months old, Essex and Suffolk, owned by David Wilder, North Bridgewater.
3.—Six pigs, three months and twenty-two days old, Suffolk and Middlesex, owned by G. F. Darling, West Needham.
4.—Six pigs, four months and twenty days old, Suffolk, owned by Harvey Dodge, Sutton.
5.—Sixteen pigs, three weeks old, sow two years and four months, owned by John Craffy, Jamaica Plain.
6.—Six pigs, over six, and under ten months old, Suffolk, owned by J. & I. Stickney, Boston.
7.—Six pigs, under six months, Suffolk, owned by J. & I. Stickney, Boston.
8.—Six pigs, under six months, Suffolk, owned by J. & I. Stickney, Boston.
9.—Six pigs, under six months, Suffolk, owned by J. & I. Stickney, Boston.
10.—Six pigs, under six months, Essex, owned by O. Clark, Boston.
11.—Six pigs, over six months, Suffolk and Mackay, owned by A. S. Lewis, Framingham.

The committee on pigs in making their awards, presented the following

REPORT:

No. 11, A. S. Lewis, Framingham, for the best litter of six pigs, six months and less than ten, 1st premium, $10.

No. 3, G. F. Darling, West Needham, best litter of six pigs, less than six months old, 1st premium, $8.

No. 4, Harvey Dodge, Sutton, six pigs less than six months old, 2d premium, $5.

The committee would call especial attention to a litter of pigs exhibited by David Wilder, of North Bridgewater, and would recommend to the Board of Agriculture that there being no exhibitor entitled to the second premium, over six months old, that it be paid to Mr. David Wilder.

Respectfully submitted,

J. P. Santmyer, *Chairman.*
Samuel E. Chandler.
Charles H. Sprague.
Samuel Newell.

POULTRY.

The elaborate and able report of the committee on this Class, (V.) precludes the necessity of any extended introductory remarks on the subject.

The premiums offered for the best collection of different varieties of gallinaceous fowls owned by the exhibitor, were first, $10; second, $5.

For the best trio of red and buff Shanghæ, $3; second best, $2; for the best and second best trio of black Shanghæ, the same; white Shanghæ, do.; gray Shanghæ or Brahma Pootras, do.; black Spanish, do.; white Dorking, do.; gray or speckled Dorking, do.; Hamburghs, do.; white crested black Polish, do.; Games, do.; Bantams, do.

For the best and second best pair of wild turkeys, do.; domestic turkeys, do. For the best and second best pair of Guinea fowls, do. For the best and second best trio of domestic ducks, do.; Muscovy, do.; Topknot, do.; common, do. For the best and second best pair of Bremen geese, do.; domestic geese, do.; wild, do. For the best and second best pair of swans, do. For the best and second best collection of pigeons, do. The entries of poultry were as follows:—

No. 1.—Different varieties of barnyard fowls, owned by Charles R. Damon, Cochituate.
2.—One cage of Brahma Pootras, chickens, owned by Daniel Buxton, South Danvers.
3.—Hamburghs, trio, owned by John W. Hunt, North Bridgewater.
4.—One cage of Bolton Grays, owned by John H. Bent, Concord.
5.—One cage of Persian Frizzle, owned by Isaac Osgood, West Newton.
6.—Two cages of Game fowls, owned by C. F. Curtis, Jamaica Plain.
7.—One cage of Bolton Grays, owned by George Dorr, Dorchester.
8.—White Dorkings, trio, owned by E. P. Hollis, West Needham.
9.—Speckled Dorkings, trio, owned by E. P. Hollis, West Needham.
10.—A collection, owned by E. P. Hollis, West Needham.
11.—One cage of Bolton Grays, owned by S. Southwick, South Danvers.
12.—One cage of Black Spanish, owned by S. Southwick, South Danvers.
13.—One cage of gold-laced Sebright Bantams, owned by E. W. Jacobs, South Danvers.
14.—One cage of silver-laced Sebright Bantams, owned by E. W. Jacobs, South Danvers.
15.—Three common turkeys, owned by C. F. Curtis, Jamaica Plain.

No. 16.—One pair of wild turkeys, owned by E. P. Hollis, West Needham.
17.—One cage of Aylesbury ducks, owned by William Bent, Cochituate.
18.—Two geese and one gander, Bremen, owned by Samuel Jaques, Ten Hills Farm, Somerville.
19.—One pair of wild geese, owned by Samuel Jaques, Somerville.
20.—One pair of Chinchu, owned by Samuel Jaques, Somerville.
21.—One pair of Chinese, owned by Samuel Jaques, Somerville.
22.—One pair of Bremen geese, owned by W. G. Lewis, Framingham.
23.—One pair of wild geese, owned by W. G. Lewis, Framingham.
24.—Three pairs of Bremen geese, owned by A. S. Lewis, Framingham.
25.—One pair of wild geese, owned by A. S. Lewis, Framingham.
26.—One pair of Bremen geese, owned by E. B. Metcalf, Franklin.
27.—One pair of swans, mute, owned by Eben Wight, Dedham.

The committee on poultry submitted the following valuable

REPORT:

Under the head of the largest and best collections, the committee awarded the first premium to S. Southwick, South Danvers. The fowls shown by Mr. Southwick, were pure bred fowls of the several various breeds shown, and we were glad to see that they had been so carefully bred.

The second premium under this head was awarded to E. P. Hollis, West Needham. From the fowls belonging to Mr. Hollis we had a mixture of pure bred fowls, with the common or barnyard fowl, which Mr. Hollis had been judiciously crossing for years, and he has always been careful to secure a pure bred Dorking cock, selecting the hens from the best models of his own stock, always rejecting every pullet which had not a good form and other requisite qualities. This course is adopted by many of the farmers in this vicinity. If early maturity for market is desired, this is a very judicious course to adopt. But to the accomplishment of this, no other cock than a Dorking, Spanish or Game, should ever be used.

Large Asiatic Fowls.—Only one entry was made under this head, and that was by Thomas Smith, Dedham. His fowls *(Chittagong,)* were very large, the rooster weighing some twelve pounds, while the hens drew ten pounds each. They were fine looking birds, and in the days of " the fancy," would have commanded an extraordinary price. The Asiatic fowl is a good layer, and a most determined sitter, it being a matter of indifference whether she sits on an egg, a stone, or any other substance. It would be hard to say whether the introduction of the Shanghæ has been beneficial or not—though good layers, yet, when served for the table, little or no meat is to be found on parts at all desirable. And when we come to the feeding, a Shanghæ will at any time match a duck—and it is well known he will eat his value about twice a week. When we see one of these long-legged Shanghæ's eating, we are reminded of what a neighboring farmer said to his wife, who had secured a few of these perfect monsters. The husband had a perfect detestation of such interlopers, as he termed them—not so his wife, for in her eyes they were "darling pets." As the husband was passing through the back yard, and seeing his good wife surrounded by her pets, with a large pan of corn under her arm, he said, "Well, my dear, I never heard of a man failing by keeping the like of these, but it was only that he did not keep enough of them."

Black Spanish.—There were several coops of this breed, which were all choice specimens of their kind. This is one of the handsomest fowls we possess, and when kept in a large number, without the intrusion of any other fowl, they prove one of the handsomest ornaments to a barnyard or a lawn. Both cock and hen are black, with the most brilliant lustral plumage, and both cock and hen have extra large combs, the former with wattles to match his immense comb. Cock and hen have white faces and cheek pieces to match—this, in *show birds*, is considered an absolute necessity; *and though an abnormal mark*, still it is required. The chairman has been the possessor of two trios, each prize coops in England, yet from these he could only obtain two or at most three chicks out of a clutch, showing the entire white face of the parents and fit to meet the requirements requisite as prize fowls. In his correspondence with some of the best breeders on the other side of the Atlantic, he learned that such was the result of their experience. These facts show plainly that the idea, entertained by some, that the want of a white face indicates impurity of blood, is not well founded.

The Spanish are the wildest of all our domestic poultry, and consequently the best for a wide range or a large farm, where they can be allowed room to seek their own food, which they will more effectually do than any other breed.

None lay so large or handsome an egg, often giving them of nearly four ounces each, with a clear white shell—though it must be borne in mind that they are not good sitters, in fact, you can hardly find one willing to perform the duty of incubation—daily their time seems devoted to laying, when not in pursuit of food. When served for the table, you find a large sized body of the whitest meat, which is full in the breast, and of the most luscious flavor.

Should one not be anxious to retain them in purity, his best plan would be to secure a good Game cock and use Spanish hens, as it serves to add stamina to the constitution.

Dorkings in sufficient purity were not presented to allow the committee to give an award. Such as were shown as Dorkings were mere mongrels, with yellow legs, though retaining the fifth toe. The true Dorking is a noble fowl, and deserving a place in any poultry yard. They are short-legged, heavily-bodied and broad-breasted, and as layers and sitters, most energetic.

From the Dorking, when served at the table, you can get more slices from off the breast than from any other breed. If not desired in purity, let a Game rooster be added for the purpose of giving hardihood. There is always danger attendant in the removal of the Dorking from one habitation to another, more so in fact than we have ever noticed in any other breed; they are almost always liable to get the snuffles, which often ends in death.

Hamburghs.—Superior specimens of this breed were shown by J. W. Hunt, North Bridgewater. This is a beautiful fowl, and as an ornamental bird, commands a good price; it is claimed that they are good layers.

Bolton Grays.—Here we have another quite ornamental bird, which is a good layer, though the eggs are small. The body of this breed of fowl is quite small and of little value for the table, and one of the few whose flesh becomes of a dingy black when boiled. George Dorr, Dorchester, had the best stock of this variety.

Frizzled.—The only trio of this breed was shown by Isaac Osgood, West Newton. This. as well as the Negro and the Rumpless fowl, are worthless, and only deserving a place in some travelling menagerie. If once mixed with our domestic poultry, it would, in all after time, give a striking proof that it had once been there; in the event of its having become mixed, the only certain and sure method is, to kill off all your fowls and start anew.

Game.—Some of the choicest of these were shown by Rupp, Hunt & Co., Wilmington, and several others. We are surprised that so few of this breed of fowl are kept by our farmers. They are the smallest feeders, good layers, determined sitters, and in maternal charge would fight a dog or vermin even to the death. One fact is worthy of mention, viz.: they are never placed on the "sick list," which shows a stamina of constitution unequalled by any other breed. And so solid and heavy is the body when ready for the table, that one might easily doubt, when balancing a Game in one hand and a bag of sand of the same size in the other, as to which was the heaviest.

TURKEYS.—We found, on examination, one coop marked "wild," which were certainly a long remove from the wild fowl of the wood. The mingling of wild stock with our domestic turkey, gives the progeny a stamina of constitution and increase of size truly astonishing to one who has never tried the experiment, and from the experience of the chairman of your committee, who has had much experience in turkey raising, we would say, where it is possible, secure the services of a pure wild male; if a wild one is not to be had, get a three-fourths or half breed male, always (year after year,) selecting your largest and best females for perpetuating the stock. The person alluded to above, at one time had one of the largest and finest specimens of a captured bird, which, when trapped in the Western wilds, weighed thirty-five pounds, and after undergoing the fatigue of transportation, weighed on arrival here, over twenty-eight pounds. When turned at large with the hen turkeys, and the sun was shining, his plumage was handsomer than is a peacock. He was pinioned on his removal from the box, and allowed as free a range as the domestic fowl. The sight of a dog would always induce him to forget his companions, and seek the woods.

Though the hen turkeys were the largest and finest procurable in New England, he added fully one-third in weight to the progeny, and at the same time, he gave a strength of constitution to the young chicks, which enabled them to pass through their early maturity unharmed, though uncared for by the owner. Had he have been disposed to have interfered in their "bringing up," he would have been at a loss to have known of their whereabouts. The hen turkeys (which were themselves half and three-quarters bred,) would go back into the woods and so carefully conceal the nest, that neither the turkey or the nest could be found. When hatched, she kept away from the dwelling and found food, such as worms, &c., by scratching away leaves, and thus she kept away, till, finding herself and young short of food, she would, all of a sudden, bring them up to the yard for feeding. Notwithstanding this was the first time of bringing them to the door, there was no shyness in the young, and from that time forward, all were as tame as any of the feathered tribe about the premises.

We have been somewhat more prolix on this subject than we had intended, hoping to induce others to make trial of the experiment, feeling certain that if the introduction of wild stock is a new feature to them, they will thank us for the hint.

Mr. D. R. Gates, of Worcester, Mass., has one turkey, eighteen months old, which weighs thirty-two pounds, and is still growing. We understand that the above was the produce of a pure wild fowl crossed on our domestic turkey.

AYLESBURY DUCKS.—William Bent, Cochituate, exhibited a handsome coop of these ducks. It was the only coop of domestic ducks, and we did not regret this, believing as we do, that this is one of the few only worth raising except as ornamental poultry. The Aylesburys attain to a large size, and if well fed while young, on meal and refuse meat, are ready for market at less than two months old.

GEESE, BREMEN.—Of this variety there were quite a number of coops, the best, however, belonging to W. G. Lewis, Framingham. The committee had never seen so large and handsome a pair of Bremens. Even the venerable Col. Jaques viewed them with evident satisfaction, being as they were descendants from stock which he imported more than thirty years ago; (here is a nut to crack for either advocates or non-advocates of in-and-in breeding,) and notwithstanding this breeding in-and-in, the Col. says they are more sizable than were the parents he imported. We understood the Col. to say, that he had in his possession (or recently had) one of the original pair.

GEESE, INDIA OR AFRICAN.—This is one of the largest varieties of recent introduction, and proves much more prolific than the Bremen or any of the common geese seen about the country; it is a stately looking goose, of a gray upper plumage, with white under the body, and any one not having a large dew-lap or pouch, should be rejected as less likely of attaining to the largest size. And here again, we would give our brother farmers a hint to act upon. Some three or four years since, a person had a gander of this breed weighing twenty-five or six pounds; having lost his mate, he coupled him with his Bremen geese. Of this progeny or cross he saved two of his best geese, still retaining the old gander. In the winter months the geese commenced laying, and continued through the summer (not laying every day, however) without showing any disposition for incubation. The owner said the two laid about one hundred and eighty eggs that year, but having no convenience to keep them out of the way of dogs he disposed of them to the chairman of your committee. One of the two geese purchased was disposed of by the writer to a friend, the other retained. In 1856, the one so retained laid sixty-seven eggs without so much as proposing to pass through the sitting process; in 1857 she laid sixty-five eggs before the feathering of her nest, preparatory for sitting. Her mate, in the hands of another person, has done about as well. The eggs, as fast as five were gathered, were placed under hens and hatched—in this way a fine flock was obtained before autumn.

The experiment has not been tried to learn whether they would breed amongst themselves, but the probability is they would not. Recourse has always been had to the pure bred, on one side or the other. Here was the offspring of two distinct species, (Buffon and some others hold that they are distinct species,) the progeny of which should, as a matter of course, be mongrels, yet, by resorting to one or the other of the originals, the eggs prove prolific. An attempt has been made to induce her to mate with a wild or Canadian gander, hoping to obtain a stock of mongrels from that cross, but so far without avail. In the same pond with this goose and the wild geese, is a pair of swans, the male of which proved false to his mate and coupled with the goose. This fact being noticed, great care was taken of her eggs from this time forward; though late in the summer, two of the eggs hatched; the goslings (or whatever else they should have been called) were very large on coming from the shell, and for several weeks throve finely, when one night both disappeared, and no trace could be found of them. The hen alone was left.

We would advise others to procure, as above mentioned, a gander to couple with Bremen geese, hoping for the same result as above stated. The raising of geese would then be an easy and profitable business, and should one such chance to mate with a wild or Canadian gander, it would prove still more profitable, as the general price of such mongrels (for the last two years in Quincy Market) has been three dollars each at first hands.

GEESE, CHINA.—There were several coops of this variety. This goose is much smaller than the preceding, though about equally prolific in eggs with the pure African, yet it is so noisy as to prove a nuisance about the premises, for it will hang about the dooryard in preference to taking to the water.

GEESE, WILD OR CANADIAN.—Some half-dozen coops of these geese graced the tent. In our eyes, this is the handsomest and most intelligent of all geese, and they afford the owner more pleasure than almost any other water fowl.

We wish some writer fitted for the undertaking, would write out an account of them, and give anecdotes pertaining to them alone. We say alone, for there is an abundance that could be said of them which is worthy of being placed on record.

Here, again, comes in a poser on in-and-in breeding, for the largest and best of those on exhibition were known to be descendants from stock which Col. Jaques brought from Canada in 1818. No cross had been introduced since that time, yet the Col. assured us they were more sizable than the original pair. We could easily believe this fact, from the knowledge of our stock, which is all of extra size, and this too is known to be from the same original source. The fact of their being well fed while young, may account for the increased size over the pair alluded to by Col. Jaques, since his were caught when wild. Though bred for generation after generation, every spring and autumn they show the original disposition to emigrate, and are alone prevented by the pinioning of the wing; notwithstanding all this, they will come at call and feed from the hand.

When bred in purity they are of little value for the table, and are kept as an ornament to grace the water, or for coupling with other geese and giving mongrels—in which case it is better to use a wild male, by which course we get a larger number of eggs than we could possibly get by using a tame gander to a wild female.

SWANS MUTE.—A large and handsome pair was shown by Eben Wight, Dedham. These were only four years old and have not yet given young. They were bred by the late R. L. Colt, of Paterson, New Jersey, and sent to the present owner when some two months old. The parents of these were procured in England. This is the most beautiful bird that graces the water, and when watched for a time they seem to take on as much vanity in showing off as would a peacock. Sailing to the utmost extent of the water with despatch, they turn about, the neck is gracefully arched, with wings raised and gently arched so as to take the breeze, will they come sailing down to the visitor. They are called "tame swan." To be sure the attachment of home in them (as in the Canadian goose) is strong, when the wing is pinioned and there is no getting away by flight, yet they are no more tame than a hyæna. They will come at call, feed from the hand, allow you to smooth the neck and body feathers, so tame are they, and will remain while there is no chance for soaring higher than the sheet of water allotted as their home.

It is best, in securing a pair, that you should make choice of cygnets, and see that the wings are pinioned before bringing them home, that they may have no sad recollection of its having been done while in your possession, the place where they are ever to remain. While cygnets they are of a blueish or slate color, and do not attain a perfect plumage till a year or two old, or breed till the third or fourth year. During the time the water is open, free of ice, they will get much of their food on the edges of the pond, often feeding on small fish, using the frogs as a desert. Should the frog prove too large, the mate comes in for a share, and each taking hold of a hind leg he is about equally divided between the two. At the time of placing the pair in the pond the frogs had almost taken possession of the pond in its circling bounds, while now nearly all have vanished except the old aldermanic inhabitants, who, the swans are aware, would prove a little too tough for a relish. The swan would withstand the cold of our winters, but, since on land they could not defend themselves against dogs and vermin, it would be cruel to leave them exposed—they are safely housed for the winter, with the liberty of a range during pleasant days. Their principal food is corn, though they will eat almost any kind of grain. In the summer they require but little food, yet this little they must have regularly or you may chance to lose them. During the winter they are small feeders, and these as well as the wild and China geese seem to (as it were) be in a partial dormant state, particularly if the premises are kept well darkened. A pair of swans, six wild geese and two tame geese do not eat more than about one quart of corn per day ; if an excess in quantity is given it is almost certain to be left. Wild geese are the smallest eaters, and it has often been a puzzle to know how they could subsist on the merest quantity of food, during the long winter months.

In addition to the premiums already named to S. Southwick and E. P. Hollis, for their collections, the judges recommend a discretionary premium to Isaac Osgood, West Newton, $3.

Division 31.—Buff Shanghæ's to Thomas Smith, Dedham, $3.

Division 32.—Black Spanish, Rupp, Hunt & Co., Wilmington, $3 ; H. P. Perrin, Brookline, for do., $2 ; Discretionary to Eben Wight, Dedham, for do., $2. Best Hamburghs, to J. W. Hunt, North Bridgewater, $3 ; second best, to H. P. Perrin, Brookline, for do., $2. Best Games, to Rupp, Hunt & Co., Wilmington, $3 ; second best, to C. F. Curtis, Jamaica Plain, for do., $2. Best Black Bantams, to Eben Wight, Dedham, $3. Best White Bantams, to Eben Wight, Dedham, $3. Bolton Grays, to George Dorr, Dorchester, $3 ; second best, to J. H. Bent, Concord, for do., $2 ; Discretionary for collection to C. R. Damon, Cochituate, $3.

Division 35.—Aylesbury Ducks, to William Bent, Cochituate, $3. Isaac Osgood, for Frizzled Fowls, $2.

Division 36.—Best Bremen, to W. G. Lewis, Framingham, $3 ; second best, to A. S. Lewis, Framingham, for do., $2 ; Discretionary premiums to Samuel Jaques, Somerville, for do., $2 ; E. B. Metcalf, Franklin, for do., $2. Best China Geese, to Samuel Jaques, Somerville, $3. Best Hong Kong Geese, to Samuel Jaques, Somerville, $3. Best Wild Geese, to A. S. Lewis, Framingham, $3 ; second best, to W. G. Lewis, Framingham, for do., $2 ; Discretionary premium to Samuel Jaques, for do., $2.

Division 37.—Best Swans, to Eben Wight, Dedham, $3.

Division 34.—Best Turkeys, to C. F. Curtis, Jamaica Plain, $3 ; second best, to E. P. Hollis, West Needham, $2.

The importance of the subject of poultry justifies the length to which the preceding remarks have been extended. The interest in this department of agriculture appears to be fully kept up in England. At the last show of fat cattle and poultry at Birmingham, first week in December, 1857, no less than fourteen hundred and ninety-eight different coops of poultry were exhibited, numbering not less than four thousand three hundred and ninety-four birds.

For the committee,

EBEN WIGHT, *Chairman.*

AGRICULTURAL PRODUCTS.

The season of 1857 was, in many respects, peculiar, and the character of the season has an essential influence on the agricultural products of the year. The rains were unusually abundant and distributed well over the season. The yield of grass was, therefore, much larger than the average of years, though its quality was, perhaps, inferior. The yield of Indian corn was less than an average, though the growth of the stalk was large. Indian corn requires a warm and genial sun, and endures a drought rather than a flood. Great apprehensions were felt in the early part of the season, that this crop would be an entire failure, but the result was better than had been anticipated. It was, however, very late on account of the cold, late spring, and some pieces failed to ripen before the frosts.

Class sixth was devoted to agricultural products, embracing field crops, flour, grain, seeds, vegetables, grasses, bread, &c.

With regard to field crops samples were to be shown in barrels at the exhibition when practicable, with assurances that they were an average of the crop, with detailed statements of the mode of cultivation, expenses, &c. The grain, seeds, vegetables and other products to be grown by the exhibitor, and certificates of the crop to be forwarded to the Secretary by the first of January, 1858. The premiums offered in this class were as follows:—

For the best crop of winter wheat, not less than two acres, nor less than thirty-five bushels per acre, $10; second best, $5.

For the best and second best crops of spring wheat, the same premiums were offered, the crop to be not less than thirty bushels per acre.

For the best crop of Indian corn, not less than two acres, to be shelled and weighed during the month of December, not less than 100 bushels per acre, $10; second best, $5.

For the best and second best crops of flax, reference being had to the extent of ground and the product, the same premiums were offered.

For the best and second best crops of the following articles, the premiums offered were the same as for Indian corn, viz.:—

Buckwheat, not less than one acre, 30 bushels; Pease, one acre, not less than 25 bushels; Beans, not less than one acre, 25 bushels; Broomcorn, not less than 1,000 lbs. brush per acre, and 80 bushels of seed; Cabbages; Onions; Marrow or other Squash; Tobacco, not less than one acre; Barley, not less than two acres, nor less than 40 bushels per acre; Rye, not less than two acres, nor less than 40 bushels per acre; Oats, not less than two acres, nor less than 65 bushels per acre; Potatoes, not less than one acre, nor less than 300 bushels per acre; Ruta-baga, not less than one acre, nor less than 800 bushels per acre; Sugar Beets, not less than one acre, nor less than 800 bushels per acre; Carrots, not less than one acre, nor less than 800 bushels per acre; Mangold Wurzel, not less than one acre, nor less than 1,000 bushels per acre; Hops.

For the best barrel of flour made from wheat grown in this State, a diploma; second best, $5.

For the best barrel of winter wheat, $5; second best, $3; third best, $2.

For the best, second best, and third best barrels of the following named articles, the premiums offered were the same as for winter wheat, viz.:—

Spring Wheat; Rye; Barley; Oats; Indian Corn, in the ear, for bread; Buckwheat; Potatoes, for the table.

For the best barrel of red clover seed, $5; second best, $3.

For the best barrel of Timothy grass seed, $5; second best, $2.

For the best barrel of redtop seed, $5; second best, $3.

For the best bale of hops, $5; second best, $3.

For the best collection of vegetables, $10; second best, $5.

For the largest and best collection of grasses, properly named, $20; second best $10.

For the best experiment in the growth of Chinese sugar cane, including trials for fodder, sirup and sugar, $25; second best, $15; third best, $10.

The quanity of grains and vegetables to be ascertained by weight, as follows:—Wheat, 60 lbs. to the bushel; Corn, 56; Rye, 56; Barley, 45; Oats, 30; Potatoes, 60; Carrots, 55; Sugar Beets, 60; Ruta-bagas, 60.

Agricultural produce of any description were received for exhibition, and where found of special excellence, discretionary premiums were awarded.

For the best loaf of wheat bread, two to four pounds, $3; second best, $2.

For the best loaf of rye and Indian bread, two to four pounds, $3; second best, $2.

For the best loaf of wheat and Indian bread, two to four pounds, $3; second best, $2.

For the best unbolted wheat grown in this State, $3; second best, $2.

For the best rye grown in this State, $3; second best, $2.

The entries of agricultural products were as follows:—

No. 1.—A collection of vegetables owned and raised by S. A. Merrill, Salem.
2.—Two barrels of potatoes, owned and raised by John Brooks, Jr., Princeton.
3.—Beans, cabbages, &c., owned and raised by W. G. Lewis, Framingham.
4.—Barrel of corn, owned and raised by William Clapp, Dorchester.
5.—Chinese sugar cane, sirup, paper, &c., by J. F. C. Hyde, Newton Centre.
6.—Potatoes and other vegetables, owned and raised by J. F. C. Hyde, Newton Centre.
7.—Squashes, two varieties, by Jesse Fogg, Cambridgeport.
8.—Chinese sugar cane, seven experiments, by J. Lake, Topsfield.
9.—A collection of vegetables, by George R. Sampson, Brookline.
10.—Bread, best wheat and Indian, and rye, by M. F. & J. A. Brigham, Boston.
11.—A collection of vegetables, by B. S. Young, Brighton.
12.—A collection of vegetables and bread, by A. Newell, Needham.
13.—Wheat bread, by Mrs. Joseph T. Ludden, Braintree.
14.—Wheat bread, by Mrs. William Harden, Quincy.
15.—Wheat flour, four barrels, by Chase & Nason, Fall River.
16.—Bread, wheat and brown, by Mrs. E. Stebbins, Boston.
17.—A collection of vegetables, by Edward Dole, Newbury.
18.—A collection of vegetables, by A. W. Coppenhagen, Dorchester.
19.—One barrel of Davis's seedling potatoes, by J. F. C. Hyde, Newton Centre.

No. 20.—One barrel of potatoes, Jackson Whites, by J. F. C. Hyde, Newton Centre.
21.—One barrel of spring wheat, by O. Curtis, Sheffield.
22.—One barrel of winter rye, by O. Curtis, Sheffield.
23.—One barrel of corn, by O. Curtis, Sheffield.
24.—A collection of grain, vegetables, and quinces, by E. W. Gardner, Nantucket.
25.—Chinese Sugar Cane, by A. Bowditch & Son, Roxbury.
26.—A collection of grasses, millet, and Chinese sugar cane, exhibited by Leander Wetherell, Boston.
27.—A string of seed-corn, by William Buckminster, Framingham.
28.—One loaf of rye bread, by Mrs. Abel F. Adams, Fitchburg.
29.—One loaf of wheat bread, by Mrs. E. B. Metcalf, Franklin.
30.—A collection of vegetables by John Forbush, Bolton.
31.—A collection of grasses, by Dennis Murray, Roxbury.
32.—Cucumbers, California, by A. B. Rice, Newton Upper Falls.
33.—Carrots, specimens of, raised on an acre, by J. B. Hull, Stockbridge.
34.—Turnips, specimen of, raised on an acre, by Benjamin Hull, Stockbridge.
35.—Chinese Sugar Cane sirup, by F. H. Williams, Sunderland.
36.—One barrel of rye, by S. A. Merrill, Salem.
37.—A collection of seedling potatoes and apples, by D. A. Bulkeley, Williamstown.
38.—One barrel of redtop grass seed, by S. T. Thurlow, West Newbury.
39.—Bread, wheat, and Indian, by Mrs. A. Newell. Needham.

The judges on agricultural products presented the following

REPORT:

The judges on agricultural products make the following awards.

To S. A. Merrill, of Salem, for his fine collection of vegetables, which were well grown; his cabbages weighing 45 lbs., his enormous squashes, and great variety, entitles him to the first premium of $10.

To J. F. C. Hyde, Newton Centre, for his large collection of vegetables, including his select varieties of seedling potatoes, the judges award to him the second premium of $5.

To J. F. C. Hyde, Newton Centre, for his experiments in the growth of the sugar cane, manufacture of sirup, and the manufacturing of paper from the residuum of the cane—entitles him to the first premium of $25.

To Joel Lake, of Topsfield, for similar experiments, except the manufacturing of paper, entitles him to the second premium of $15.

To John Brooks, Jr., of Princeton, for the best barrel of potatoes (these are St. Helena's, large and very smooth,) the first premium of $5.

To J. F. C. Hyde, of Newton Centre, for a barrel of Davis's seedlings, the second premium of $3.

To Orrin Curtis, of Sheffield, for the best barrel of corn, in the ear, first premium of $3.

To William Clapp, of Dorchester, for a barrel of corn, in the ear, second premium of $5.

To Chase & Nason, of Fall River, for the best barrel of flour, manufactured from wheat grown in Massachusetts, a diploma.

To Orrin Curtis, of Sheffield, for the best barrel of spring wheat, the first premium of $5.

To E. W. Gardner, of Nantucket for the second best barrel of spring wheat, which was a little shrivelled, but was from a field of over thirty-two bushels per acre, we award the second premium of $3.

To S. A. Merrill, of Salem, for the best barrel of winter rye, the first premium of $5.

To E. W. Gardner, of Nantucket, for the second best barrel of winter rye, the second premium of $3.

To Orrin Curtis, of Sheffield, we award the third premium of $2.

To S. T. Thurlow, of West Newbury, for a barrel of redtop seed, $5.

To Mrs. William Harding, of Quincy, for the best loaf of wheat bread, $3.

To Mrs. J. T. Ludden, of Braintree, for the second best loaf of wheat bread, $2.

To Mrs. E. Stebbins, of Boston, for the best loaf of brown bread, $3.

To M. F. & J. A. Brigham, of Boston, for the best loaf of wheat and Indian bread, $3.

To Mrs. A. Newell, of Needham, second premium on wheat and Indian bread, $2.

To Mrs. Abel F. Adams, of Fitchburg, for the best loaf of rye bread, $3.

Your judges, cannot in justice to their feelings, close their report without noticing other matters on exhibition worthy of note and commendation which a mere award does but imperfect justice to the exhibitor. The time, skill, and outlay by Messrs. Hyde, Lake, and others, in their experiments should be noticed, particularly Mr. Hyde, whose outlay for a mill and boilers, together with an outlay of sixty dollars in an experiment in manufacturing paper from the refuse stalk, which has proved successful; and his opinion in regard to its future success, is of importance to the public. He thinks he would take the risk of the seasons, and engage to contract to furnish sirup for forty cents per gallon. Mr. Bulkeley, of Williamstown, says that he has grown fourteen hundred varieties of seedling potatoes ; if Mr. Bulkeley has made no mistake in his count, he has certainly done up a work on an extended scale, which from the specimens shown do not promise to be of much importance to the public. Experiments, such as are noted above, should be tried, but few individuals are willing to try them, and very few can afford the outlay ; they should be borne by the public.

The vegetables exhibited by Mr. B. S. Young, of Brighton, George R. Sampson, of Brookline, Mr. Coppenhagen, of Dorchester, and W. G. Lewis, of Framingham, all deserve our notice, and had there been other premiums offered, would have been awarded to them. Their fine squashes, cauliflowers, cabbages, turnips, beets, &c., &c., were creditable to them as cultivators. Mr. Merrill, of Salem, and Mr. Fogg, of Cambridgeport, exhibited some monstrous squashes ; also one from Mr. Newell, of Needham. They are sightly, but not to be preferred to the vegetable marrow, crookneck or Canada, for table use. Edward Dole, of Newburyport, had a fine display of vegetables, which were not entered ; his corn was judged the best, but no premium could be given as he had not complied with the rules. The committee recommend, however, a gratuity of five dollars, equal to the first premium. Fine strings of corn and onions were exhibited by Mr. A. D. Weld, William Buckminster, and Mr. Dole, and Harvey Dodge. Of grasses, a fine collection was made by Mr. Leander Wetherell from the office of the Board of Agriculture, for exhibition only. A collection was also offered for premium by Mr. Dennis Murray, but was not adjudged worthy of a premium ; fine specimens were offered of field crops, which will be noticed in full in the coming reports. A specimen of the noted Nantucket pumpkin, and fine turnips of the varieties of the snow-ball and green globe, larger than the drawings of them, by E. W. Gardner, of Nantucket ; the Messrs. Hovey exhibited the largest dioscorea batatas* or Chinese potatoes, ever seen at our Massachusetts exhibitions, measuring twenty-three inches in length. Chinese sugar cane, from Azel Bowditch. Sirup from the cane was exhibited by Franklin H. Williams, of Sunderland, and John Whitley, of Shirley Village. The flour exhibited was made from white winter wheat, grown by Moses Stebbins, of South Deerfield; he sows his wheat in August, and has been successful in his crops for many years; his price for seed is $2.50 per bushel.

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* DIOSCOREA BATATAS.—The following notice has been received from the Chairman of the Committee on Vegetables :—

"DEAR SIR :—Since my report on vegetables was rendered to you, I have caused the two fine roots of the Dioscorea Batatas, given to me by Messrs. Hovey, to be cooked, one by being boiled, the other by being roasted ; they were submitted to the taste of a company of amateur Horticulturists, who were of the opinion that if they were ripe, there was nothing in them to recommend their superiority over the Irish, or Sweet potato.

Yours truly, B. V. FRENCH."

For the judges,
B. V. French, *Chairman.*

Mr. Hyde, in making his application to the committee, presented the following

STATEMENT:

My cane was planted the 20th of May, the larger part; the remainder the 22d day of May. Manured the same as for corn, a shovelful of compost mud and horse manure in a hill. One and a half pounds of seed used—came up very well. It was hoed the 15th of June for the first time, and hoed twice in all, being about two inches high when first hoed. I used the cultivator among it. I sowed some in hills for sirup making, and prefer to have it in hills. The number of hills to half an acre is 2,400, with an average of four stalks to a hill. The hills were near both ways, three feet one way by about two and one-half to three feet the other. The cane was in bloom about Sept. 20th to 25th. I made sirup on or about the 15th. It was dark colored and not good. Selected canes from this field would furnish a pint of juice. The whole yield of the half acre was 90 gallons. I will give some of the experiments. On Sept. 25th the cane was in blossom, and 15 canes weighed 25½ lbs.; Begasse or waste, 9 lbs.; juice, 16 lbs.; loss, ½ a lb. The juice measured 7½ quarts; yield of sirup 1½ pints.

Oct. 1st.—50 canes weighed 80 lbs.; juice, 49 lbs.; Begasse or waste, 30 lbs.; loss, 1 lb.; yield of juice, 5½ gallons; weight about 9 lbs. to a gallon; made only two quarts of thick sirup.

Oct. 19th.—One gallon of juice from cane in the "dough state," gave 1½ pints of sirup of as light color as honey.

Average yield of sirup to the gallon of juice, from fresh cane as cut from the field, one pint.

Oct. 17th.—I made paper from the begasse or waste, and continued five days, at an expense of about $60. It made thick paper board, as well as paper.

I should have stated, that the amount of dry fodder, leaves and tops from the half acre was, by actual weight, 1,590 lbs. Average height of my sugar cane 11 feet, though much of it reached 13 feet.

My experiment with the cane for green fodder, was as follows: I sowed sugar cane side by side with Burr's sweet corn, on poor sandy land, about the 25th of May. Both came up well, and the 1st of August both were cut and fed green to cows, pigs and horses. The corn did not start again, but the sugar cane got up from two to three and a half feet, and some of it showed panicles. I have tried the juice for cider and vinegar—it ferments like cider. What it will give in the end I cannot say.

I have many other matters in connection with this subject if they are wanted.

Mr. Lake, in presenting his experiments with the Chinese sugar cane, made the following

STATEMENT:

I planted the seed the first of June, in drills; slightly manured in the row; it was hoed once; wood ashes were put round the stocks once; the soil was sandy loam, rather shady; it should be grown on warm sunny land; some stalks attained the height of thirteen feet.

No. 1.—September 11th. As soon as the seed tassal appeared upon the top of the stock I expressed some of the juice, which was very thin and mean, and boiled it down eleven-twelfths, (or 12 gallons to one,) which made a light kind of molasses.

Four more experiments, in four days, with about the same success.

No. 2.—Four more experiments were made from the 17th to the 20th of September, and found the yield to be twelve gallons reduced to two.

No. 3.—September 26th. This experiment was much better than it had been; ten gallons were reduced to three, and a fine sirup.

I had some cane cut up and laid away in the barn for ten days before the frost came; and I have every reason to approve of the wilting of the cane prior to expressing the juice; I cut and lay them aside during that period, when a great portion of the water the stock contains evaporates. Five gallons of juice that was expressed from the wilted cane will furnish as much sirup, and of as good quality, as seven gallons taken from the green stalks. As the necessary evaporation in the boiling of the sap from the wilted cane is much less than from the green, the saving of fuel is proportional.

No. 4.—October 2d. This experiment was successful; four gallons produced one of superior sirup.

No. 5.—October 10th. An experiment was made, the result of which was that the juice was much thicker as it came from the stalks, consequently less water to evaporate and less fuel to be used; ten gallons were reduced to three.

No. 6.—October 17. Five gallons reduced to one, the best yield. The juice was pressed out with a large iron roller, the same kind used by shoemakers.

In boiling, the kettle must be well heated before the juice is put into it; when it arrives at the boiling point then skim off the floating substance, and then let it simmer down to the substance of molasses, which will be in about two hours; then strain through cotton or woollen cloth and it is fit for use.

As the result of my own observation and sixteen experiments made by me from the 11th of September to the 17th of October, I have no doubt it will succeed—and the fair yield of well cultivated Chinese sugar cane will be about 225 gallons of good sirup, to the acre, if a proper process is applied to express the juice.

The leaves that are taken from the stalk before pressing, are worth as much for cattle as the cost of wood will be to boil out the sirup.

The stalks taken green and cut up in a machine are good for cattle if done before the frost comes.

Pigs will thrive quite well on the stalk cut up in the same way.

My opinion is that the sirup will not granulate without a chemical process.

The liquid must be boiled in nothing but iron kettles or pans, as copper or tin destroys the flavor.

I am fully impressed that the cultivation of the Chinese sugar cane is a subject that interests all our farmers greatly, and they should take hold of the subject and investigate for themselves.

Mr. Roys, of Sheffield, Mass., also made the following

STATEMENT:

I planted 25 square rods of Chinese sugar cane the 22d of May; soil limestone loam; several years a meadow. Applied 20 cart loads of yard manure to the acre—ploughed under and well harrowed—marked in rows three feet apart. A handful of compost, plaster, ashes and hen manure applied to each hill. Used cultivator and hoe three times, and thinned to four stalks in a hill the first time. Had a frost Sept. 9th, that killed the ends of the leaves. Commenced cutting to feed cattle and make sirup, without much success. After some experimenting, however, I succeeded in getting quite a palatable article of sirup by the following method: First, we expressed the juice by means of a mill of our own manufacture, made with horizontal rollers, two in number, about eight inches long and six inches in diameter, fixed in pieces of plank for bearings and one end of each protruding on opposite sides, to which was attached a crank, thus giving two men a chance to turn while a boy inserted the stalk. The mill was placed in an inclined position, thus bringing one roller above and little behind the other—about one-fourth of an inch apart—while underneath was placed a vessel covered with flannel, to strain and receive the juice.

We have used both brass and copper kettles in boiling it away, keeping it thoroughly skimmed, and when half finished have mixed a table-spoonful of lime water to one gallon of the juice, straining again through white flannel when finished. We get half a pint of juice from each stalk, and make from 8 to 10 per cent. of sirup from the juice.

Our cane has not matured in consequence of the early frost, which came soon after the heads or seed appeared. This sample of sirup offered was made Oct. 10th.

Carrots.—Mr. J. B. Hull, of Stockbridge, subsequently presented the following

STATEMENT:

The acre of land on which my carrots were raised, was a dark loam, ploughed twelve inches deep. Two pounds of the long orange carrot seed were sown on the 13th of May. They were hoed four times and weeded twice, the rows twenty inches apart and the carrots about four inches in the row. While digging we were hindered very much by rain, and were unable to take them all, one and a half miles, to the scales, to weigh. The only alternative was to weigh a certain number of rows. Accordingly I took two rows near one side of the piece; measured two rods and dug two more, and so on, until I had dug eight rows, which yielded 96 bushels. The piece was 20 rods long and 8 wide, having 76 rows, which would yield 912 bushels. In my estimate I charged 5½ cents per bushel for harvesting and delivering 275 bushels more than the actual yield, $15.12. I charged $60 for manure on the acre, and allowed nothing for what remained in the soil. I suppose one-half would not be too much, $30. Thus reducing the expense $45.12.

Estimated income, 1,185 bushels, 28 cents, . . .		$331 80
Overestimate, 273 " " " . . .		76 44
Income from an acre, 912 " " " . . .		$255 36
Estimated expense, ...	$145 00	
Overestimate, ...	45 12	
Actual cost, ...		99 88
Net income, ...		$155 48

In justice to myself I must say, that my estimate was made by digging, and that no agricultural committee would take a poorer rod.

TURNIPS.—Mr. Benjamin Hull also presented the following

STATEMENT:

The piece of turnips with which I wish to compete for premium is represented by a sample which I have forwarded to the Fair, and which are an average of the acre. The land is worth $100. Soil fair; mixture green sward. Ploughed last fall; not ploughed in the spring. Sixteen loads horse manure to the acre; harrowed in rows; raised seed white Swedish Turnip. Hoed twice; cultivator run through several times.

Cost of cultivation,	$12 00
Interest and taxes on soil,	6 75
16 loads manure at $2.	32 00
Expense of harvesting 960 bushels,	9 60
Seed, 25 cts.,	25
	$60 60

The acre yields at this time $28\frac{4}{5}$ tons, or 960 bushels, at $8.33 per ton, amounts to	$233 00
Cost of cultivation,	60 60
Net proceeds,	$172 40

I notice there is no premium offered for the best acre of turnips, but as the ruta-baga is a species of turnip I take the liberty to offer this piece.

FRUITS.

The lateness of the season at which the Fair was held made the display of a large number of favorite varieties which would have been expected at an earlier date, impossible. Under the circumstances the display was very remarkable and completely successful, and afforded not only the most gratifying evidence of the progress made in this department, but also of the public spirit and enterprise of our fruit-growers.

The premiums offered for fruit, Class VII., were as follows :—

For the largest and best exhibition of named varieties of apples, not less than three specimens of each, $20; second best, $15; third best, $10.

For the best twelve varieties, not less than six specimens each, $15; second best, $10; third best, $5.

For the best dish of apples, one variety, not less than twelve specimens, $5; second best, $3; third best, $2.

The same premiums were offered also for pears.

For the best collection of peaches, $15; second best, $10; third best, $5.

For the best dish, not less than twelve specimens of one variety, $5; second best, $3.

For the best half-bushel of quinces, $5; second best, $3.

For the best barrel of cranberries, $10; second best, $8; third best, $6; fourth best, $4.

For the best new or seedling grape, hardy, and equal or superior to the Isabella, with a history of its origin, a premium of $20; second best, $10.

For the best display of native grapes, $20; second best, $15; third best, $10.

For the best display of foreign grapes, $20; second best, $15; third best, $10.

The entries of fruit were as follows:—

No. 1.—Pears, twelve varieties, by Ariel Low, Roxbury.
2.—Pears, a single dish, by Ariel Low, Roxbury.
3.—Grapes, native, by George B. Cutter, Weston.
4.—Pears, twelve varieties, by Henry Vandine, Cambridgeport.
5.—Pears, one hundred varieties, by Marshall P. Wilder, Dorchester.
6.—Apples, a collection of, by T. Clapp, Dorchester.
7.—Peaches, a collection of, by T. Clapp, Dorchester.
8.—Peaches, not less than twelve varieties, by T. Clapp, Dorchester.
9.—Pears, not less than twelve varieties, by T. Clapp, Dorchester.
10.—Grapes, native, by C. E. Grant, Roxbury.
11.—Cranberries, one barrel, by Edward Reed, Burlington.
12.—Pears, forty varieties, by John Gordon, Brighton.
13.—Pears, twenty-seven varieties, by William Bacon, Roxbury.
14.—Grapes, Concord, by E. W. Bull, Concord.
15.—Pears, two varieties, by E. A. Story, Brighton.
16.—Apples, forty-two varieties, by J. Lake, Topsfield.
17.—Pears, twelve varieties, by R. W. Ames, Roxbury.
18.—Apples, collection of, by D. C. Brewer, Springfield.
19.—Pears, two varieties, for exhibition, by D. C. Brewer, Springfield.
20.—Grapes, three varieties, and wine, by D. C. Brewer, Springfield.
21.—Pears, one variety, by Aaron Livermore, Roxbury.
22.—Grapes and pears, by John M. Ives, Salem.
23.—Pears, four varieties, by William Page, Cambridge.
24.—Apples, one basket of Hubbardston Nonsuch, by John B. Moore, Concord.

No. 25.—Apples, thirteen varieties, by W. W. Wheildon, Concord.
26.—Apples, Hubbardston Nonsuch, by Joseph Fenno, North Chelsea.
27.—Prunes, one box, by Edward Clark, Northampton.
28.—Melons, orange-water, and flesh-colored pumpkins, by William F. Gay, Watertown.
29.—Apples, one variety of winter, twelve, by Ira Curtis, Sheffield.
30.—Pears, four varieties, by Jacob Eaton, Cambridgeport.
31.—Pears, six varieties, by Jesse Haley, Cambridgeport.
32.—Cranberries, one barrel, by E. W. Gardner, Nantucket.
33.—Apples, twelve varieties, and one dish of pears, by Wright Stratton, Northfield.
34.—Apples, thirty-four varieties, by Asa Clement, Dracut.
35.—Peaches, four varieties, by Asa Clement, Dracut.
36.—Quinces, one-half bushel, by Ariel Low, Roxbury.
37.—Cranberries, one barrel, by A. R. Leland, Sherborn.
38.—Pears, one hundred and fifty varieties, by Hovey & Co., Boston.
39.—Watermelons, one box, by William Buckminster, Framingham.
40.—Grapes, Isabella, one basket, by Kendall Bailey, Charlestown.
41.—Pears, thirty-two varieties, by Henry Vandine, Cambridgeport.
42.—Plums, three varieties, by Henry Vandine, Cambridgeport.
43 —Quinces, by Henry Vandine, Cambridgeport.
44.—Apples, by Henry Vandine, Cambridgeport.
45.—Persimmon, by Henry Vandine, Cambridgeport.
46.—Pears, twelve varieties, by Hovey & Co., Boston.
47.—Apples, by Hovey & Co., Boston.
48.—Pears, by Barnabas Hedge, Plymouth.
49.—Dish of Apples, by Thaddeus Clapp, Dorchester.
50.—Grapes, by R. M. Copeland, Boston.
51.—Cranberries, cultivated, one barrel, by E. D. Miller, Dorchester.
52.—Grapes, foreign, seven varieties, by Nathan Durfee, Fall River.

The committee on fruit submitted the following

AWARDS:

Apples.—For the largest and best exhibition of apples, the committee award the first premium to Thaddeus Clapp, of Dorchester. To Joel Lake, of Topsfield, a gratuity of $10. To Asa Clement, of Dracut, a gratuity of $8. The second and third premiums were not awarded.

For the best twelve varieties of apples, they award the first premium to Wright Stratton; of Northfield. For the second best, they award the second premium to D. Chauncey Brewer, of Springfield. For the third best, the third premium to Wm. W. Wheildon, of Concord.

For the best dish of apples, they award the first premium to Joseph Fenno, of North Chelsea, for Hubbardston Nonsuch. The second premium to J. B. Moore, of Concord, for the second best dish of apples, also Hubbardston Nonsuch. The third premium to Messrs. Hovey & Co., of Boston, for the third best dish, Baldwins.

Pears.—For the largest and best exhibition, they award the first premium to John Gordon, of Brighton. To Messrs. Hovey & Co., of Boston, they recommend a gratuity equal to the first premium, $20. To Henry Vandine, of Cambridgeport, they award the third premium.

For the best twelve varieties, they award the first premium to Ariel Low, of Roxbury, the second to William Bacon, of Roxbury, the third to R. W. Ames, of Roxbury.

For the best dish of pears, they award the first premium to Thaddeus Clapp, of Dorchester, for Seckels. The second to William Bacon, of Roxbury, for Glout Morceau. The third to Jesse Haley, of Cambridgeport, for Duchesse. To Aaron Livermore, of Roxbury, they recommend a gratuity of $5.

Peaches.—For the best collection, they award the first premium to Thaddeus Clapp, of Dorchester. For the second best, the second premium to Asa Clement, of Dracut. The other premiums not awarded.

Quinces.—No premiums were awarded on quinces, no one presenting the requisite quantity.

Cranberries.—The first premium for the best barrel, to A. R. Leland, of Sherborn, the second to Dr. E. D. Miller, of Dorchester, the third to Edward Reed, of Burlington, the fourth not awarded.

Grapes.—The first premium, for the best native or seedling grape, to E. W Bull, of Concord. The second premium not awarded.

For the best display of native grapes, they award the first premium to C. E. Grant, of Roxbury, the second to George B. Cutter, of Weston, the third to Kendall Bailey, of Charlestown.

For the best display of foreign grapes, the first premium to Dr. Nathan Durfee, of Fall River. The other premiums not awarded.

The committee also recommend the following gratuities : To Edward Clark, of Northampton, for prunes, $2. To Samuel Chandler, of Lexington, for plums, $2. To H. Vandine, of Cambridgeport, for plums, $3.

For the committee,

Joseph S. Cabot, *Chairman.*

THE DAIRY

Formed the Eighth Class, and in this the following premiums were offered:—

For the best butter, 50 pounds, made in June, $15; second best, $10; third best, $5.

For the best, second best, and third best 50 pounds made since that time, the same premiums were offered.

Also, for the best, second best, and third best box of 20 pounds of lump butter, the same.

The same amounts were offered for the best, second best, and third best lot of 100 pounds, one year old or over.

And the same, for the best, second best, and third best 100 pounds new cheese.

The following is a list of entries in this class:—

No. 1.—Butter, lump, by Lucy Morse, Medfield.
2.—Butter, lump, 22 lbs., by Elijah M. Reed, Tewksbury.
3.—Butter, firkin, 58 lbs., by Mrs. Wilkes Roper, Princeton.
4.—Butter, lump, 27 lbs., by Mrs. Wilkes Roper, Princeton.
5.—Cheese, new, 150 lbs., by S. W. Lincoln, South Adams.
6.—Cheese, new, 118 lbs., by Job Ranger, New Braintree.
7.—Cheese, new, 103 lbs., by M. Thompson, New Braintree.
8.—Cheese, new, 115 lbs., by Peter Harwood, Barre.
9.—Butter, lump, 52 lbs., by Asa G. Sheldon, Wilmington.
10.—Butter, lump, 25 lbs., by Nathan Caswell, Fitchburg.
11.—Butter, lump, 21 lbs., by William Robinson, Jr., Barre.
12.—Butter, firkin, 53 lbs., by William Robinson, Jr., Barre.
13.—Cheese, new, 210 lbs., by William Robinson, Jr., Barre.
14.—Butter, lump, 22 lbs., by Joel Hayward, Ashby.
15.—Butter, lump, 28 lbs., by T. M. Stoughton, Gill.
16.—Butter, box, 50 lbs., by T. M. Stoughton, Gill.
17.—Cheese, new, 158 lbs., by Samuel Ellsworth, Barre.
18.—Butter, lump, 22 lbs., by Henry Boyles, Princeton.
19.—Butter, lump, 20 lbs., by William Eames, Worcester.
20.—Butter, lump, 20 lbs., by W. G. Woods, Dedham.
21.—Butter, lump, 28 lbs., by C. C. Sewell, Medfield.
22.—Butter, one tub, by P. M. Wright, Windsor.
23.—Cheese, by Hollis Tidd, New Braintree.
24.—Butter, lump, 23lbs., by Jonathan Forbush, Bolton.
25.—Butter, firkin, 30 lbs., by Jonathan Forbush, Bolton.

The committee on dairies submitted the following valuable

REPORT:

Only seven lots of new cheese were entered and submitted for examination. Of these lots the committee considered that made by William Robinson, Jr., of Barre, entitled to the first premium of $15. The second premium of $10 was awarded to Samuel Ellsworth, of the same place; and the third of $5, was adjudged to Hollis Tidd, of New Braintree.

In awarding these premiums the committee have confidence that full justice was done to the several competitors.

There were found among other lots a particular cheese of decidedly superior quality to any one of the successful lots of cheese.

Far superior to any, was one cheese made by S. W. Lincoln, of South Adams; but the decidedly bad condition of the second one tasted by the committee, and the varied quality of the remaining two of the lot, compelled the rejection of the cheese as a whole.

So the two sage cheese of Mr. Ellsworth, were of such superior excellence as to raise the whole exhibited by him to a point which, had these been omitted, the lot would not have reached.

The cheese of Job Ranger, and Moses Thompson, of New Braintree, and Peter Harwood, of Barre, were so good as only to be inferior to the other more successful lots.

A slight variance in the mode of manufacture, particularly in the amount of salt added to the curd, might in the opinion of the judges have changed the direction of some of the premiums.

No old cheese, as such, was entered, an absence of which was especially regretted.

Thirteen boxes of lump butter, and five lots of tub butter, duly returned by the Secretary, and ranged upon the tables, admonished the committee of the extent and delicacy of their labors.

Although no lot was duly entered as having been "made in June," the committee adjudged that such was the date of the manufacture of that entered by Mrs. Wilkes Roper, of Princeton, and, although the only lot of the kind, its good quality entitled it to the first premium of $15 offered for such butter.

Of the four lots of tub butter made since June, no member of the committee hesitated a moment in declaring that of T. M. Stoughton, of Gill, decidedly superior to any other offered. The sense of sight, of smelling, and of taste were alike gratified; and had the committee been in possession of this lot, their only *want*, so far as this article goes, would have been satisfied. Of course the first premium of $15, for tub butter made since June, was given to Mr. Stoughton. Of the other lots, that of William Robinson, Jr., of Barre, was adjudged the second best, and that of P. M. Wright, of Windsor, the next best in quality; and to the former of these gentlemen is awarded the second premium of $10, and to the latter the third, of $5.

In the lots of lump butter there was greater difference in quality; and in one or two instances a re-examination on the morning of the second, compelled a change of the opinion formed by the inspection and taste of the first day.

Especially was this true in the case of Mr. Stougton, of Gill, whose butter (in tub was unapproached by other lots, in "lump,") was spoiled by a new box, in which it was exhibited. The re-examination on the second day convinced the committee of the correctness of their first adjudication, by which Henry Boyles, of Princeton, is entitled to the first premium of $15.

The second premium of $10, is awarded to J. Forbush, of Bolton and the third of $5, to William Eames, of Worcester.

The committee refrain from commenting particularly upon the butter of the unsuccessful competitors, in the assurance they have, that each one of them will be able, from the general remarks which follow, to draw a correct conclusion as to the particular cause, which, in his own instance operated unfavorably with the committee.

Butter, as such, is the mere fat, or oily particles of milk, separated from the serous portion by agitation. Yet to its perfection of taste an addition of foreign matter to a certain extent is necessary. Precisely what amount of this foreign matter, salt, should be added, is not determined, and varies in a good degree with the amount of water contained in the food of the animal from whose milk the butter results. Good cows, sweet feed, and pure water are first of all requisite to the manufacture of good butter. Good cows, that, other things being equal, proper color and right consistency be secured, sweet feed and pure water, that no flavor be imparted to the milk which should render the butter unpalatable. What breed, or what mixture of blood is best adapted for the dairy it is not proposed to consider, inasmuch as a slattern must make a poor article from the best cow.

Among the grasses of our pastures are found some peculiarly adapted to the secretion of deep rich and high flavored milk, mingled however, with many kinds of inferior quality. Hence the importance of proper attention as well to the grazing as the mowing fields. Important, however, as would be a cultivation of our pastures, and, dependent as is the quality of the article manufactured, upon the goodness of the food, a proper degree of care and skill on the part of the dairy-woman is of much greater consequence. Care, that all the utensils of the dairy are kept dry and sweet; that the milk-room is well ventilated—of a proper temperature, free from dampness and the unpleasant smell generated by moisture; that the cream is not suffered to stand too long upon the milk, nor after skimmed; that it be churned at a proper temperature, the operation neither being hurried unduly nor carried too far, that it be salted; not injured by the addition of either sugar or saltpetre, and that all the buttermilk be properly and effectually removed.

None but the experienced and the successful dream to what nicety attention to these things should be carried, and many are unaware how much slight deviations from the true course affect the quality of the article they manufacture.

Butter is judged of by its color, aroma, taste and consistency. Its color should be of a delicate pale straw, not approaching white, and yet perhaps that is better than the deep orange tint almost always sure indication of extraneous coloring matter.

Every one recognizes that peculiar smell which is always given off from the nicest butter. The better the quality of the butter the more delicate is this smell, while as the quality of the article degenerates, in almost the same proportion does this aroma vary to that which is positively offensive. This fragrance is dependent very much upon the process of manufacture.

No rule can be given by which the uninitiated can secure it; for the most skilful do not always succeed in attaining it, though with due care success is measurably certain.

All know the high reputation of "Orange County" butter; few are aware how much that is made in other places is sold as from that territory, and that the dairy maid of that county transferred to a different locality will still manufacture Orange County butter.

Any inattention to the proper care of either the milk, cream, or the vessels in which they are kept, will be betrayed by the taste of the butter. So is the addition of any foreign matter, by which the taste is to be affected, easily detected.

Certain of the competitors will place to the account of the sugar worked into their butter, their want of success in obtaining a premium. So far from improving the flavor, in the opinion of the committee, it materially impairs the proper taste of butter.

From the sugar of milk and the sugar of commerce the same ultimate is reached. But because the sugar cane yields a sweet, it does not follow that its addition imparts the right sweet to butter.

Some of the butter examined by the committee would have been assigned a very different rank had not its sweet been so very decided.

So, too, the quality of this article is injuriously affected by the too great or too little salt added to it, as well as by the quality of the salt itself. Butter should be salted with the nicest salt to be obtained.

In examining the lots of butter before us some were found in which the salt was of so coarse quality as to be left in quite large particles in the mouth upon the dissolution of the butter. Of course its maker will know the reason of its rejection.

While the committee do not believe in an excess of salt, they are far from admitting that good butter can be made entirely fresh, and for such reason they feel compelled to reject one lot which otherwise would have received a premium.

It is believed that a certain amount of salt is necessary to bring out the true flavor of butter in its greatest delicacy. Whether this could not be obtained by salting the cream previous to its being churned, is worthy consideration. But, however that may be, or how great the quantity to be added to the butter or the cream, all will agree in the propriety of using none but the best article.

Unfortunately a good article is difficult to be procured. From his own experience the chairman would use none but the "ground rock salt," labeled as prepared for dairy use, though that same experience warns him of its occasional great difference in strength as well as purity.

Among the lots examined by the committee, perhaps there was greater difference in the texture or consistency than in any one other point. Some were waxy, leaving no mark upon a knife after being thrust into a lump, with hardly enough moisture to dim its brightness, while other lots were soft, leaving greasy streaks upon the blade and large drops of an opaque liquid oozing from the newly-cut surface. The existence of either of these signs gives sure indication of imperfect if not bad process of making. The utmost moisture which should be found in thoroughly worked butter is a very slight dew, and it should be of such firm, waxy consistency as to slice down, hardly dimming the brightness of a knife-blade. No butter is properly made unless it will bear these tests.

The committee regret that so few competitors saw fit to file with the Secretary, or present to them, any written account of their mode of management, and that the few statements given to them were so meagre and imperfect in their detail.

It was a source of gratification to them to find, upon examining the statements in their possession, (which was not done till after they had made their first decision,) that their own taste agreed with the statement of the competitor as to the presence of sugar, in one instance to as great an amount as a teaspoonful of sugar to each pound of butter.

The butter of Mr. Stoughton, of Gill, was of the very nicest quality, aside from the taste imparted to it by the new box in which it was exhibited. It was delicately salted, it was thoroughly worked, and no other lot gave off so delightful aroma.

Mr. Stoughton states, as his process of manufacture, that, " When the butter is well formed the buttermilk is drawn, and a pail of water of proper temperature is poured on to the butter, and the churn set in motion for four or five minutes ; the water is then drawn off and another pailful applied. The butter is then worked on an inclined table with a square cover, and salted with three-fourths of an ounce of salt per pound of butter. Butter stands twenty-four hours, when it is worked again, and made ready for market or the table."

The testimony of the chairman, in favor of the use of water and the butter-table, upon which, without the contact of hands, to work out the buttermilk and work in the salt, cannot be withheld, more especially as one lot was condemned on account of the presence of a peculiar flavor suggested by one of the committee as having been derived from the hand of the dairy maid, and which, upon a subsequent reading of the statement of its owner, appeared to have been worked by hand.

The statements of other competitors disclose no point of manufacture of peculiar value.

It must have been matter of regret to all spectators as it was to the committee, that so few farmers saw fit to join in the competition for the liberal premiums offered for the products of the dairy. One-half of all the butter offered at the exhibition, and of the cheese every lot but one came from the county of Worcester.

As a whole, the quantity of either was less than is frequently seen at many of our county shows. The committee can only regret a want of interest so unaccountable, and have to commisserate that peculiarity which prompts our females to contribute their crotchet and crewel work to the vanity fairs of the day, at the expense of withholding from exhibitions like this the more meritorious and substantial contributions of their skill in housewifery.

For the committee,

WILL. S. LINCOLN, *Chairman.*

As this subject is attracting considerable attention, both on account of its intrinsic importance and the increased extent to which it is carried as a branch of practical farming, it may not be out of place to say that a method, in some respects new, has been invented by a German agriculturist, Baron H. von

Unwerth, and for which a patent has been applied for. The object aimed at in this method will appear in the following letter from Prof. Horsford to the inventor.

"CAMBRIDGE, Jan. 4, 1858.

DEAR SIR:—I have examined with great interest the method of treating milk which you have devised, with a view to produce from a given supply of milk, the largest practicable measure of excellent butter.

The use of block tin pails, pans, and churns, commends itself as well for the facility with which the vessels may be cleaned, as on account of the impossibility of their imbibing and retaining traces of milk, [to become acid, and in its turn rapidly change other sweet milk to sour,] and the insusceptibility of the metal to corrosion from the joint action of the air and milk.

The permanently elevated temperature to which the milk is subjected, and the shallow layer of milk in the pans which is prescribed, will obviously facilitate the separation of the butter particles [the cream] from the other ingredients of the milk.

The idea of lessening the chances of good butter becoming rancid, by effectually separating the butter particles from the caseine at the outset,—and the necessity for providing for the absolute cleanliness and freedom from all traces of milk previously in the vessels, on the theory of their being ferment in the sour milk which will greatly hasten the changes in sweet milk, are, it is needless to say, sound in a chemical point of view.

If attention to the particulars, which you have made prominent might become general, it can not be doubted that great advantages would result to both producer and consumer.

I am very respectfully and truly yours,

E. N. HORSFORD."

In making a statement of his method Baron Unwerth speaks as follows:—

"The breeding of cattle is one of the most interesting and profitable branches of farming. The production of beef and tallow, and especially the production of milk and the making of butter and cheese, furnish food indispensable to man. This branch of agriculture is so extensive that the least mistake, or any want of economy is seriously felt, while on the other hand any improvement, however small, either in the treatment of the dairy itself or in converting the produce of it into money, will add vastly to the aggregate profit of this branch of farming.

"To procure a perfectly uniform stock of dairy cows is as difficult as to build up a uniform flock of sheep.

"The geographical and geological position of the country and the political and statistical position of the farm itself are to be taken into consideration in the selection of any particular breed or stock, and the farmer will follow his judgment according to circumstances. A good animal does not need any more food in proportion to its live weight, than a poor one, while it yields a hundred per cent. more profit, though at the same time, the old German proverb may be true, that '*The cow milks only through the throat.*'

"But I shall confine myself to remarks on the product of the dairy. This may be converted into money in various ways:—

"1st. By direct sale of the milk.

"2d. By making it into butter.

"3d. By making it into cheese.

"In the vicinity of good markets the direct sale of milk is the easiest, though the cost of man, horse, and wagon is to be considered, and when it is deducted, the net profit may be less than that of butter.

"The making of cheese requires the most accurate practical knowledge, and the article itself is usually disposed of in the market with greater inconvenience than either milk or butter. In the making of butter the farmer is sure to find a ready market; and whether near or remote from the city he can command, in a measure, his own price, by selecting his market, and the net-work of railroads covering the greater part of the United States, and constantly extending, greatly facilitates his operations.

"Besides the use of butter is so universal that the supply always falls short of the demand, and this must necessarily be the case for some time to come.

"With few exceptions, butter is bought and sold in this country in a salted state. Salted butter is never so good nor so palatable as fresh butter, one or two days old only, and this brought to market in a proper form, will be sold more readily and a few cents a pound higher, than salted butter. Salted butter kept in its usual state, that is more or less exposed to the air, will absorb oxygen, and is therefore more injurious and unhealthy than fresh butter.

"After butter is made, especially if the cream was sour, a decomposition takes place which, to a greater or less extent, is unavoidable, and if this decomposition reaches far, butyric acid is produced and other offensive matters, and the consequences must be injurious to the consumer.

"To prevent the absorption of oxygen, both in the making and keeping of butter, I have, after several years of practical and theoretical examination and experiment, adopted the following conclusions, viz. :—

"1st. It is not necessary to have a large and expensive cellar for the keeping of the milk. Common house cellars are wholly unfit for keeping milk. Too many other things are often stored there which pregnate the air with gases injurious to the milk. A room devoted exclusively to it, and situated on the north side of the house is better.

"Cleanliness is essential in every part of the room, and every thing in it. The room should be whitewashed once a year, and all the wood work and the floor should be painted with oil paint. The temperature of the room should not be over seventy-five or eighty degrees Fahrenheit, and never under sixty degrees ; and this temperature, should, in winter, be kept up if necessary, by a stove, and in summer by good ventilation with blinds, or wire screens on the windows.

"2d. *Milk Utensils.*—To prevent, if possible, the milk from turning acid, no utensils should be of wood, as, even with the greatest cleanliness, wood is apt to be infected by the all-penetrating acidity. The same is the case with those made of metal or stone, which were formerly either round or angular, and which were more or less uneven in their surfaces, and offered no protection against the infectious acidity. Those not made of metal are easily broken, and those of copper or iron, to prevent their rusting, must be *worked over* from time to time. The worst kind of utensils are those made of zinc, as milk acidity acts as a dissolvent of zinc.

"All these disadvantages are avoided by using tin. Tin vessels made in proper form, and fewer in number, will save half the expense of those now in use in a short time.

"The milk pail should also be of tin, as well as the pans and the churn.

"I would recommend the washing of the pail before milking with hot water. The milk, as it comes from the cow, is about blood heat (100° Fahr.,) and should be cooled off as little as possible before coming to rest in the milk pan. Even by the most careful treatment the milk falls in temperature from 30° to 40°, and hence the nearer the milk room is to the stable the better, especially in winter. The milk should be prevented from cooling too much and too rapidly.

"Figure I. represents the best construction of the milk-pan. It is made of tin in an oblong shape, the corners carefully rounded. The pan is two inches in depth and large enough to hold eight quarts of milk, which is strained in to the depth of 1½ inches. It can be made of course to hold more or less quarts. The important end of least exposure to the air is attained with my pan in the following manner:—

"I fill it to the depth of only an inch and a half, and keep it at a temperature of from 70° to 80° Fahr. The cream (the butter particles) have a shallow space to move through, and the fluidity and bulk of the milk having been increased by the warming, the facility of separation of the butter particles is such that less than twenty-four hours are required for the complete rising of the cream, while with the old method in general use, from two to three days are necessary. The cream that is produced at lower temperature contains more or less caseine (cheese particles) which give rise by fermentation, at a later period, to offensive products before named. As milk has its greatest density at 41° Fahr., it is obvious that the nearer its temperature approaches this point, the slower will be the movement of the butter particles, and the more time will be consumed in the separation of the cream. That the greater the depth of the milk, the slower will be the separation of the cream is sufficiently clear. By my process the cream is quite free from cheese particles, and may be employed to make a good quality of cheese or for cooking purposes.

"Butter obtained from a certain quantity of milk in the old way is

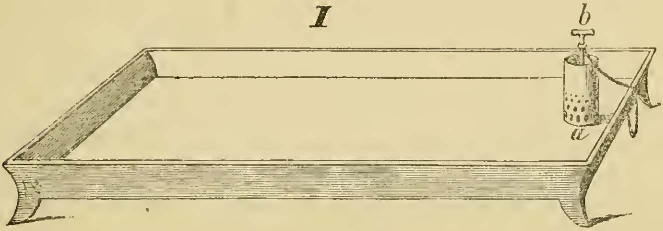
"1st. Less.

"2d. By the greater absorption of oxygen, it loses its fine taste and is more apt to become rancid.

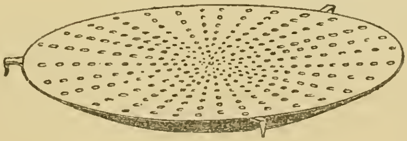
"3d. By the greater quantity of caseine (cheesy matter) contained in the cream, the butter will never possess so delicate a flavor, and contains far less fatty matter. This may be seen on melting it, bad butter giving more effervescence than good, or than butter which is free from caseine.

"For a strainer for the milk into the pan I use a very simple contrivance, as shown in Figure II. It is pierced with holes, and the centre is half an inch lower than the rim, to which are fixed three hooks, which hold it at pleasure to the top of the pan. Over this strainer I lay a coarse linen cloth, and the milk passes through the cloth and the tin strainer also, and this arrangement serves to separate all foreign substances in the milk more effectually.

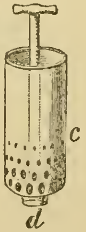
I



II



III



"The cloth should be kept as clean as possible. The smallest degree of acidity left in it may be detected by the smell, and this will have an injurious effect on the milk and butter if allowed to remain. The least admixture of old milk should be strictly guarded against, both in the strainer, the pans and the pails. An atom of sour milk may render acid any quantity of sweet milk, just as the diastase in the distilling and brewing of beer, or as the least particle of yeast produces the sugar transformation, or the least quantity of leaven turns a large quantity of dough sour.

"This power of transformation, possessed by a small quantity of ferment, is one of the remarkable facts of science. It is called by the celebrated chemist Berzelius, the 'Katalytic power.' Figure III., on a larger scale, may serve to explain the milk pan Figure I., more fully.

"In the bottom of the milk pan, near one end, is an opening, *a*, through which the milk is drawn, after the cream is all risen or separated from it, by raising a brass pin, *b*. The opening is lined with brass, and is three-fourths of an inch in diameter. A tin cylinder, *c*, is fitted into the opening, and this is pierced, to the height of an inch, with many small holes, diminishing in size towards the top. The cream is all risen in twenty-four hours. I then draw the pin from the cylinder and the milk flows out, leaving the thick cream, which is prevented from flowing out by the smallness of the holes in the cylinder.

"As the removal of all sour matter is of the utmost consequence, the churn is also of great importance. Most churns now in use are made of wood, and are apt to injure the butter in consequence of their liability to infection with milk acidity. To avoid this difficulty I have constructed a churn, as shown in Figure IV., made entirely of tin, and I consider it better adapted for its use than any now in use. The churn consists of the following parts:—

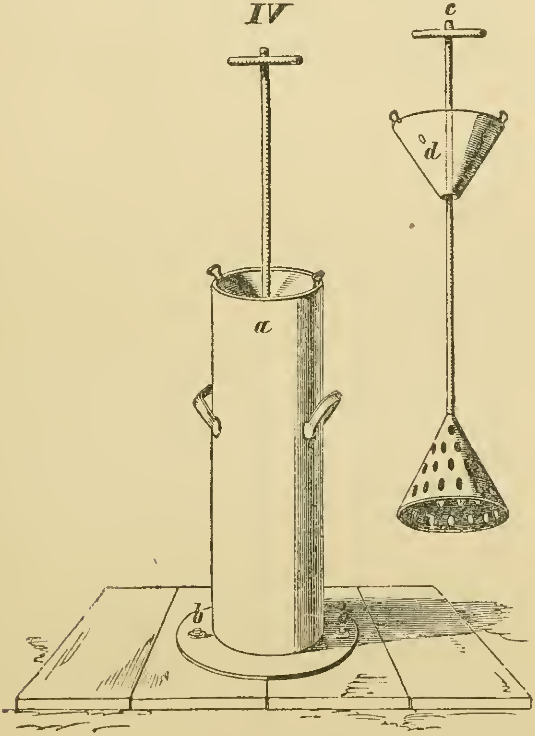
"*a*, a cylinder with two handles at the top, (the size of this cylinder may be regulated by the quantity of cream to be used.)

"*b*, two flanges or projections from the outer edge of the bottom of the churn, with holes through which it may be screwed to the floor, so as to keep it steady while churning.

"*c*, a kind of dasher, made of strong tin, and therefore light. The lower part of the dasher is in the form of an inverted tunnel, which fits pretty tightly to the inside of the churn or cylinder. The tunnel is pierced with numerous holes. This hastens the formation of the butter exceedingly, giving a greater impulse to the dasher without great effort. The handle of the dasher is so made as to be screwed on or taken off at pleasure.

"*d*, the cover of the churn. It is of tin, and in the form of a tunnel, the smaller part of which goes into the churn. Two hooks on the edge or rim of the cover hold it tight to the churn. All the buttermilk thrown up during the churning is caught by the inside of the cover and has therefore to run back into the churn.

"The time taken to churn in this manner is only from four to six minutes in a temperature of 60° Fahr.



"It is desirable to churn once in twenty-four hours. It requires but little labor in the manner above described, and no prudent farmer would want to omit it when the advantage is so great.

"As to the skim-milk obtained in this method, it remains perfectly sweet and may be made into almost any kind of cheese, and I think it is poor economy to feed it to cattle or swine, or to use it even for baking bread. At the end of the year no farmer will be much better off for it, while the skim-milk made into cheese will give him from two to ten dollars per cow more profit.

"To sum up the advantages of this method of butter-making, they may be said to be,

"1st. The cleanliness and exclusion of acidity, which cannot be attained (even by great care) by the old methods, and which this invention secures in the most perfect manner.

"2d. The same room will answer in summer as well as in winter, by keeping a pretty uniform degree of temperature, for the purposes of butter making.

"3d. The butter is free from acid, which is of great advantage.

"4th. The taste and flavor of the butter is improved and is made conducive to the health of the consumer.

"5th. If sweetness of taste and flavor is thus secured and made subservient to the health of the consumer, the demand for the article will increase and the price become higher in a corresponding degree.

"6th. The rapidity with which the cream will rise enables me to dispense with half the number of pans, and only half the amount of room and other conveniences are required.

"7th. As only half the space is required, instead of an expensive cellar on purpose, or a cellar used also for other purposes, and therefore unfit to keep milk in, besides the trouble of going up and down a flight of stairs, even the backwoodsman in his log-cabin in the far West, can get a better profit from his cow with a less expenditure of labor and money.

"8th. The milk keeps perfectly sweet while the cream is rising, in a temperature of from 70° to 80° Fahr., and it is therefore more useful for domestic purposes, and may be made into any kind of cheese and turned into money.

"REMARKS.—1st. The milk pans can rest on a strip of board which is grooved out so as to allow the skim-milk to run into a vessel kept for the purpose underneath.

"2d. In winter nearly all butter, made by all previous modes, has a bitter taste, while with my method it remains perfectly sweet.

"3d. If the rules as I have stated them above, are closely observed, it will take *at the highest* only twenty hours from the time of milking to produce butter.

"4th. I propose to affix to the churn a very simple contrivance, to make the process of churning much easier, which may be required in large dairy establishments."

AGRICULTURAL IMPLEMENTS.

Class IX. included all agricultural and horticultural implements, and in this department the exhibition was unrivalled by any ever made in New England, and probably by any ever made in this country. The enterprising firms of Boston are deserving of great credit for the public spirit which they manifested in making this the most splendid and the most successful department of the Fair. The premiums offered in this class were as follows:—

For the best collection of agricultural and horticultural implements, a diploma and $50; second best, $40; third best, $30.

For the best assortment of Ploughs, a diploma or medal; best portable Steam Engine for farm purposes, $10; best Harrow, $3; best Cultivator, $3; best Drill Barrow, $5; best hand Corn Planter, $2; best horse-power Corn Planter, $5; best broad-cast Seed Sower, $5; best Roller, for general use, $6; best Potato Digger, $2; best Shovels, half-dozen, cast-steel, $2; best Shovels, half-dozen, $2; best Spades, half-dozen, $2; best Hoes, half-dozen, $2; best Road or Farm Scraper, $5; best Horse Hoe, $5; best Mowing Machine, $25; best Mower and Reaper combined, a diploma and $25; best machine for distributing Fertilizers, $5; best Threshing Machine and Separator, $5; best Fanning Mill, $5; best Corn-stalk Cutter, $5; best Hay Cutter, $5; best Horse-rake, $5; best hand Corn Sheller, $3; best horse-power Corn Sheller, $5; best Clover Machine, $5; best Corn and Cob Crusher, $5; best Portable Grist Mill, $10; best Portable Saw Mill, $10; best Horse-power, $10; best Grain Cradle, $3; best hand Rakes, twelve, $2; best Hay Forks, six, $2; best Scythes, six, $2; best Scythe Snath, $2; best Manure Forks, six, $2; best Vegetable Cutter, $25; best Collection of Harnesses and Saddles, $10; best Axes, dozen of, $5; best Churn, $5; best Cheese Press, $5; best Ox Yoke, $5; best Horse Cart, for farm, $3; best Farm Wagon, $5; best Pump, for farm use, $5.

The following is a list of entries of agricultural and horticultural implements:—

No. 1—Agricultural and horticultural implements, collection of, by Nourse, Mason & Co., Boston.

2.—Agricultural and horticultural implements, collection of, by Parker, White & Gannett, Boston.

No. 3.—Agricultural and horticultural implements, collection of, by Nourse & Co., Boston.

4.—Garden hoes, six, by J. W. Crosby, North Bridgewater.

5.—Agricultural and horticultural implements, collection of, by Blake, Barnard & Co., Boston.

6.—Plough, S. Hurlbert's patent convex mouldboard and iron-beam, by J. Vankerman, & Co., Boston.

7.—Horse-Power, by Burt, Wright & Co., Harvard.

8.—Potatoe Diggers, six, by H. Partridge & Co., Medfield.

9.—Manure Forks, eight, by H. Partridge & Co., Medfield.

10.—Revolving Horse Rake, by Thomas R. Roach, West Needham.

11.—Danford's improved Grass Cutter, by J. W. Thompson, Greenfield.

12.—Rotating Harrow and Cultivator, by H. Hall Putnam, Muskingum Co., Ohio.

13.—Combined Reaper and Mower, by Ball, Aultman & Co., Canton, Stark Co., Ohio.

14.—Ploughs, collection of, by Blake, Barnard & Co., Boston.

15.—Harrow, by Blake, Barnard & Co., Boston.

16.—Cultivator, by Blake, Barnard & Co., Boston.

17.—Drill Barrow, by Blake, Barnard & Co., Boston.

18.—Broad-cast Seed Sower, by Blake, Barnard & Co., Boston.

19.—Potatoe Digger, by Blake, Barnard & Co., Boston.

20.—Shovels, cast-steel, six, by Blake, Barnard & Co., Boston.

21.—Shovels, six, by Blake, Barnard & Co., Boston.

22.—Hoes, six, by Blake, Barnard & Co., Boston.

23.—Horse Hoe, by Blake, Barnard & Co., Boston.

24.—Cornstalk Cutter, by Blake, Barnard & Co., Boston.

25.—Hay Cutter, by Blake, Barnard & Co., Boston.

26.—Horse Rake, by Blake, Barnard & Co., Boston.

27.—Hand Corn Sheller, by Blake, Barnard & Co., Boston.

28.—Horse-power Corn Sheller, by Blake, Barnard & Co., Boston.

29.—Corn and Cob Crusher, by Blake, Barnard & Co., Boston.

30.—Portable Grist Mill, by Blake, Barnard & Co., Boston.

31.—Hand Rakes, twelve, by Blake, Barnard & Co., Boston.

32.—Hay Forks, six, by Blake, Barnard & Co., Boston.

33.—Scythes, six, by Blake, Barnard & Co., Boston.

34.—Scythe Snaths, by Blake, Barnard & Co., Boston.

35.—Manure Forks, six, by Blake, Barnard & Co., Boston.

36.—Vegetable Cutter, by Blake, Barnard & Co., Boston.

37.—Axes, twelve, by Blake, Barnard & Co. Boston.

38.—Churn, by Blake, Barnard & Co., Boston.

39.—Cheese Press, by Blake, Barnard & Co., Boston.

40.—Ox Yoke, by Blake, Barnard & Co., Boston.

41.—Pump, for farm use, by Blake, Barnard & Co., Boston.

42.—Ploughs, collection of, by Dickerman & Stevens, Taunton.

43.—Seed Drill, by Nourse & Co., Boston.

44.—Horse Hoe, by Nourse & Co., Boston.

45.—Road Scraper, by Nourse & Co., Boston.

No. 46.—Ox Yoke, by Nourse & Co., Boston.
47.—Hoes, six, by Nourse & Co., Boston.
48.—Cheese Press, by Nourse & Co., Boston.
49.—Harrow, by Nourse & Co., Boston.
50.—Cultivator, by Nourse & Co., Boston.
51.—Corn and Cob Crusher, by Nourse & Co., Boston.
52.—Hand Corn Sheller, by Nourse & Co , Boston.
53.—Vegetable Cutter, by Nourse & Co., Boston.
54.—Gates's Eagle Corn-stalk Cutter, by Nourse & Co., Boston.
55.—Gates's Eagle Hay and Straw-cutter, by Nourse & Co , Boston.
56.—Horse Corn Planter, by Nourse & Co , Boston.
57.—Manny's Mower and Reaper combined, by Nourse & Co., Boston.
58.—Manny's Mower, by Nourse & Co., Boston.
59.—Manny's Iron Mower, by Nourse & Co , Boston.
60.—Manure Forks, six, by Nourse & Co., Boston.
61.—Hay Forks, six, by Nourse & Co., Boston.
62.—Potato Diggers, six, by Nourse & Co., Boston.
63.—Patent Scythe Snaths, six, by Nourse & Co., Boston.
64.—Stevens's patent Scythe Snaths, three, by Nourse & Co., Boston.
65.—Grant's patent Fanning Mill, by Nourse & Co., Boston.
66.—Grant's patent Grain Cradle, by Nourse & Co., Boston.
67.—Tyler's patent Churns, three, by Nourse & Co., Boston.
68.—Pratt's Axes, twelve, by Nourse & Co., Boston.
69.—Emery's Changeable Horse-power, by Nourse & Co., Boston.
70.—Emery's Thresher and Separator, by Nourse & Co., Boston.
71.—Seed Drill, by Nourse & Co., Boston.
72.—Portable Saw Mill, Nourse & Co., Boston.
73.—Johnson's patent Fanning Mill, by Nourse & Co., Boston.
74.—Ploughs, assortment of, by Nourse, Mason & Co., Boston.
75.—Harrow, by Nourse, Mason & Co., Boston.
76.—Drill Barrow, by Nourse, Mason & Co., Boston.
77.—Horse-power Corn Planter, by Nourse, Mason & Co., Boston.
78.—Field Roller, for general use, by Nourse, Mason & Co., Boston.
79.—Horse Hoe, by Nourse, Mason & Co., Boston.
80.—Horse-power, by Nourse, Mason & Co., Boston.
81.—Mowing Machine, by Nourse, Mason & Co., Boston.
82.—Mower and Reaper combined, by Nourse, Mason & Co., Boston.
83.—Hay Cutter, by Nourse, Mason & Co., Boston.
84.—Corn-stalk Cutter, by Nourse, Mason & Co., Boston.
85.—Hand Corn Sheller, by Nourse, Mason & Co., Boston.
86.—Horse Rake, by Nourse, Mason & Co., Boston.
87.—Road or Farm Scraper, by Nourse, Mason & Co., Boston.
88.—Churn, by Nourse, Mason & Co., Boston.
89.—Ox Yoke, by Nourse, Mason & Co., Boston.
90.—Allen's Mowing Machine, by Parker, White & Gannett, Boston.
91.—Allen's Mower and Reaper combined, by Parker, White & Gannett.
92.—Whitman's Double Horse-power, by Parker, White & Gannett.
93.—Whitman's Single Horse-power, by Parker, White & Gannett, Boston.

No. 94.—Whitman's Thresher, Separator, and Cleaner, by Parker, White & Gannett, Boston.
95.—Whitman's Portable Sawing Machine, by Parker, White & Gannett, Boston.
96.—Wheeler's Cast-steel Axes, handled, twelve, by Parker, White & Gannett, Boston.
97.—Darling's Cast-steel Scythes, twelve, by Parker, White & Gannett.
98.—Tyler's patent Churns, four, by Parker, White & Gannett, Boston.
99.—Cylinder Churns, five, by Parker, White and Gannett, Boston.
100.—Rotating Vegetable Cutters, two, by Parker, White & Gannett.
101.—Corn-cob Crushers, two, by Parker, White & Gannett, Boston.
102.—Field and Garden Roller, by Parker, White & Gannett, Boston.
103.—Portable Fruit Mill, by Parker, White & Gannett, Boston.
104.—Road and Farm Scrapers, two, by Parker, White and Gannett.
105.—Horse Hoe, by John Shares, Hampden, Conn.
106.—Harrow, by John Shares, Hampden, Conn.
107.—Stone Elevator, by the State Farm at Westboro'.
108.—Spades, six, Blake, Barnard & Co., Boston.
109.—Knox's Gang Cultivator, Nourse, Mason & Co., Boston.
110.—Vegetable Cutter, Nourse, Mason & Co., Boston.
111.—Apple Paring and Slicing Machine, Marvin Smith, New Haven Conn.
112.—Self-sharpening Hay Cutter, Parker, White & Gannett, Boston.

The committee presented the following valuable

REPORT:

The most extensive and most magnificent collection of farm implements that was ever exhibited in Massachusetts, and probably in the United States, was presented to the committee, rendering the work of examination a work of great labor, and one which required much time and consideration.

In many instances, it was a matter of great difficulty to arrive at results satisfactory to the committee themselves, and they cannot expect that their decisions will, in all cases, be satisfactory to the parties more immediately concerned. Men who have expended much time, thought and money in inventing and constructing an implement, and bringing it to perfection, are apt to look upon it with feelings somewhat akin to those of paternity, and to attach to it more value and importance than will those for whose use it was designed, and hence they will be dissatisfied with the judgment of those who are disinterested, and who aim to strike an impartial balance between the inventor and the public.

The great number of implements exhibited will render it impossible to speak of each in detail, to specify all the new implements, or even those which have been remodelled in some important respect.

The manufacturers of agricultural implements are every year exhibiting a great increase of skill in the construction and finish of their work, and of ingenuity and judgment in the adaptation of their articles to the various purposes for which they are designed.

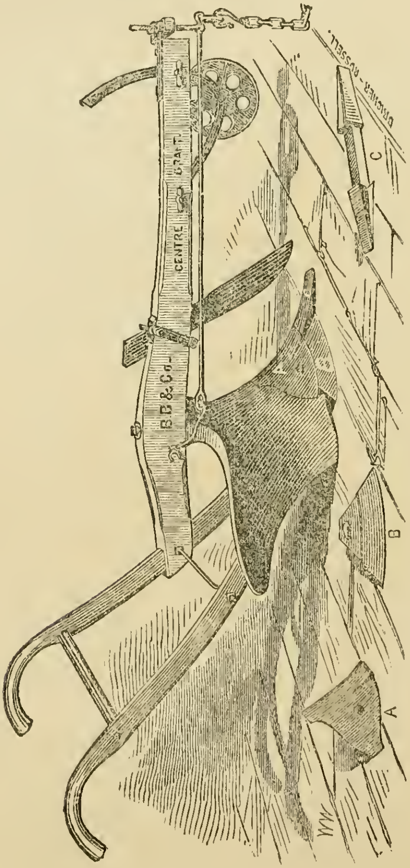
The surgeon has an instrument designed for, and adapted to, every operation upon the human body, from the extraction of a cataract to the amputation of a limb.

The mechanic has a tool for the most delicate and intricate operation he has to perform, and success in these operations depends, essentially, upon the adaptation and perfection of the instruments.

So in the operations of horticulture and farm husbandry, the ease, the certainty, and the success of their results depend, in no small degree, upon the perfection of the instruments employed. This fact is becoming, every year, more fully appreciated by the cultivators of the soil. They are constantly calling for implements better suited to their varied operations, and are constantly suggesting improvements in those already made. These suggestions are received by the manufacturers in a spirit which indicates not only a regard to their own interest, but also to the convenience and advantage of the public. The amount of intellect directed to the invention and improvement of agricultural implements and machinery, is truly surprising. The combination of mechanical powers according to scientific laws, is working out the most complicated results with mathematical accuracy. The grain separator and cleaner, which, driven by an improved horse-power, threshes the grain from the straw, winnows and cleans it, and separates it from small seeds and imperfect grains, and deposits it in the bag, is an illustration of the combination of various processes in the action of one machine.

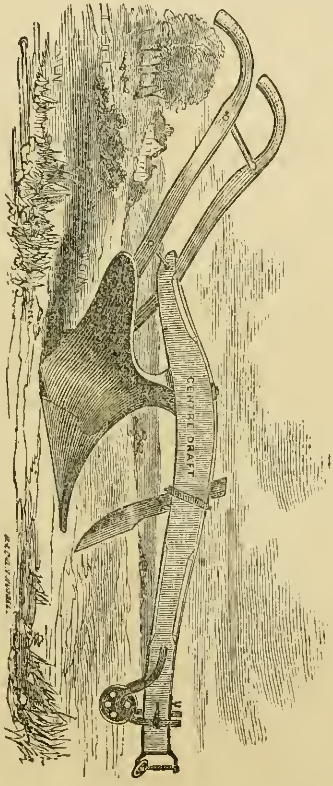
The union of strength with lightness, is an idea which has ever been prominent among American manufacturers. In hand implements and portable machines, this is the chief reason of the superiority which they have attained over European manufacturers. It is attained by the use of the best materials, tempered to the point which affords the greatest degree of strength, and by giving to every part that form which presents the least possible resistance and friction. This idea is well illustrated in several ploughs in common use, which are so constructed that they insinuate themselves into the earth, and raise it from its bed, while at the same time the furrow is being turned, and present at no one point a dead resistance to the soil. It is possible that the idea of lightness in several patterns of the plough, has been carried quite as far as is desirable. English and

Scotch ploughs for doing the same work, are much heavier than ours, and the English and Scotch farmers believe they do their work with more evenness and uniformity than do ours. It is probable that a certain amount of weight in the plough is necessary to the perfection of its work Which possesses the proper weight must be determined by experience and the nature of the soil. The plough is the most important implement in agriculture, and the man who improves the structure of the plough, and renders it most capable of reducing the soil to a good degree of tilth, with the least outlay of dynamic force, does a good service to his country. In this connection, your committee cannot refrain from remarking, that Mr. Knox, going on from the vantage ground previously reached by Mr. Joel Nourse, has contributed greatly to this object, and we would award him our highest



Prouty & Mears' Centre Draft Plough—Entered by Blake, Barnard & Co.

commendation, and we are happy to believe that his efforts are duly appreciated by the agriculturists throughout the country. In the collection of ploughs presented by Nourse, Mason & Co , an ingenious plough, devised by Hon. J. Holbrook, President of the Vermont Agricultural Society, was shown to your committee. This plough consists of a series of twelve mouldboards, of different forms and sizes, adapted to almost every conceivable kind of work, fitted to one frame and standard. The union of the mouldboard to the frame is simple and firm. A similar series of mouldboards of steel is fitted to one frame, with a wrought iron standard. The contriver of this plough claims that there are many advantages in having the various mouldboards, needed for different soils and modes of culture, combined in one general implement, rather than in having several implements, and a great saving of expense and storage thereby. The frame, and either one or any number of the mouldboards, may be



Connecticut River Valley Plough—Entered by Blake, Barnard & Co.

purchased separately. The whole collection of ploughs presented by Nourse, Mason & Co., as well as those presented in the other collections, was one of the leading features of the exhibition, and marks, perhaps, more distinctly than any thing else, the march of improvement in agriculture.

A series of ploughs with iron beams, presented by Dickerman and Stevens, of Taunton, and invented by Rich, is worthy of notice. In these ploughs the moving power is applied near to the work, and in certain descriptions of soil they do their work with great ease and efficacy. The smaller sizes, especially the horse ploughs, are managed with much ease and convenience.

Iron beam ploughs, which were highly finished, and which have the peculiar advantage of Rich's ploughs, viz.: that they bring the power near the work, were presented by Vankerman & Co. Their form of mouldboard is found in Nourse, Mason & Co.'s collection.

In the union of strength with lightness, in the construction of mowers and reapers, it is not to be supposed that perfection has yet been reached. It is but a few years since this machine was introduced, and the improvements that have been already made warrant the belief, that a much higher degree of perfection will soon be attained than has as yet been reached in even the most highly finished machines that have been manufactured. This is a machine of almost inestimable importance, both to the grain producer and the grain consumer. It enables the former to gather harvests of unlimited amount, while it materially reduces the price to the latter.

As the cotton gin, in years gone by, created a source of boundless wealth to the planters of the South, so the reaper renders possible the production of an amount of grain that can be reckoned only by millions of bushels, and which is increasing in a ratio that almost exceeds belief. In proportion to the high cost of manual labor will be the estimation in which this machine will be held. It is of scarcely less value when used as a mower than when used as a reaper. The number and variety already in the market is great, and annually increasing, showing that the demand for them is great, and that perfection has not yet been reached. Each has its points of excellence. Some are constructed wholly of iron and steel; wood enters largely into the construction of others. The various excellences of each have not, as yet, been combined in any one. The machines of Manny and Heath seem, to your committee, to combine more of the properties desirable in a mowing machine, than any others which they examined. Each of them affords a basis upon which improvements may be made, until a high degree of perfection shall be reached.

An iron mower, presented by J. W. Thompson, of Greenfield, called Danford's improved grass cutter, is an ingenious machine. It is light and simple, and does not seem likely to get out of order.

A machine from Ohio, has its cutter arm attached by a hinge, by which it may be readily applied to an uneven surface.

A light, portable machine, which may be easily worked by the one horse owned by most small farmers, is still a desideratum.

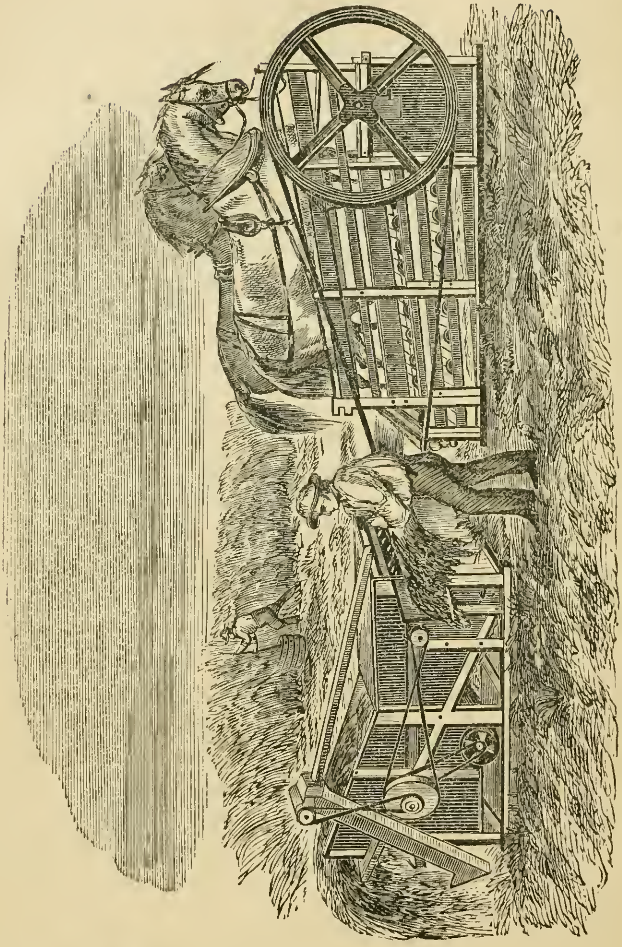
As the machines here presented, together with many others, have been recently subjected to a severe test by eminent men, who had the most favorable opportunities to examine their actual working, under different and various circumstances, and as your committee had no opportunity whatever to test them, they decided to award no premium to this class of machines.

Horse-Powers.—This machine may be profitably employed upon farms to a much greater extent than it is at present. It may be applied to the threshing and winnowing of grain, and the shelling of corn. One machine may be made to do this description of work on several farms. It may be used to cut the wood for family use, and upon large farms, to cut the hay, corn-fodder and roots. The single horse-power presented by Burt, Wright & Co., of Harvard, appeared to your committee superior to any other examined. It runs with a more uniform and even motion, avoiding the jerking motion so common in this class of machines, and so wearing to the horse. The iron rail upon which the rollers traverse, describes the figure of an elipse. By a slight deviation from the eliptic form, near the ends of the elipse, the jerking motion is obviated. The gudgeons upon which the rollers play, are furnished with a collar of chilled iron, which prevents, in a great measure, the friction, and consequently the wear. The whole machine appears to be faithfully made, and is very compact and highly finished.

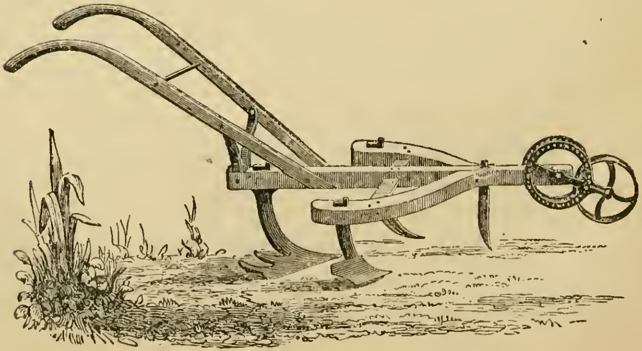
Whitman's double horse-power, exhibited by Parker, White & Gannett, is a valuable machine. It is faithfully manufactured, and seems capable of great endurance. When applied to move the thresher and grain-cleaner, or the portable saw mill, it may accomplish a vast amount of work.

Horse Hoes, Cultivators and Harrows.—A great variety of these implements were on exhibition, adapted to work of various kinds.

We saw no horse hoe superior to Knox's, presented by Nourse, Mason & Co. Mr. Knox probably believes that no instrument is so suitable for stirring the soil as the plough. In this implement he has



Whitman's Premium Double Horse-Power and Thresher—Entered by Parker, White & Gannett.



Horse Hoe—Entered by Parker, White & Gannett.

combined two single with one double plough, and has thus attained the most perfect horse-hoe that has yet been constructed.

Knox's gang cultivator is an implement of great value under certain circumstances, and will do the work which no other implement will do.

A great variety of harrows were presented of very perfect workmanship, among which we would particularly mention a steel tooth-folding harrow, introduced by Mr. Holbrook, of Vermont, in the collection of Nourse, Mason & Co., which appeared to us capable of doing its work with great rapidity and thoroughness, and a very ingenious implement called the rotating harrow and cultivator, presented by Mr. H. Hall, of Putnam, Muskingum Co., Ohio. This is very light, but is rendered sufficiently heavy by being loaded with a movable iron weight. On a soil free from stones or sods, it must do very fine work. It is drawn by an iron rod attached to a central pivot on the upper surface of the harrow. When it is to be moved from place to place, it is turned upon its periphery, and pushed by the rod as easily as a wheel is moved. When the rows of corn or other crops are sufficiently distant from each other, it is capable of doing the work of the cultivator very effectually.

Among the implements for preparing the soil for the seed, we would notice a ridging plough, more used at the South than with us, but which seemed to us capable of being very useful for certain purposes. When it is desired to throw the surface into ridges, for the cultivation of turnips or other crops, it will do it with great rapidity and evenness.

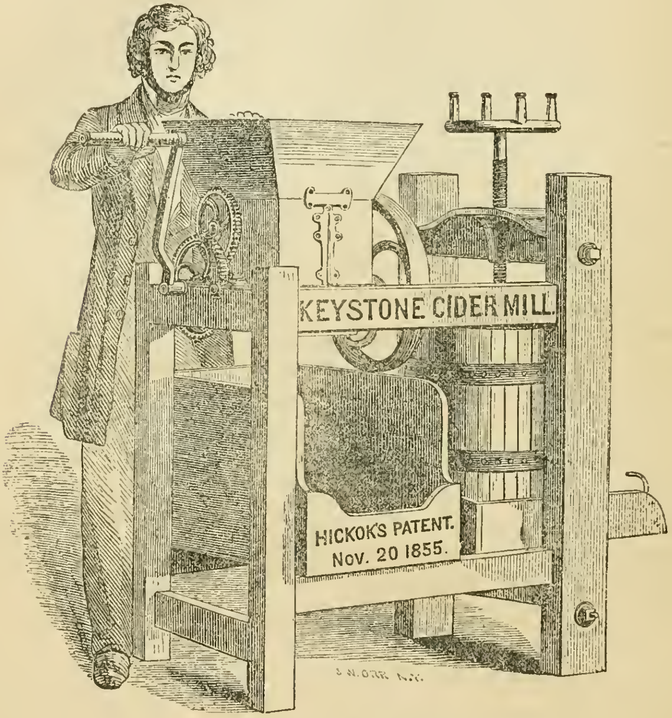
SEED SOWERS AND CORN PLANTERS —Many of these useful articles were presented, among which we would specially notice Howe's Drill Barrow, which appears to combine all the excellences, and to avoid most of the defects, of other drilling machines.

Billings' Horse Corn Planter is entitled to particular commendation, as doing its work with more evenness and certainty than any other.

Bundy's Potato Planter, which is an extension of the principle of Billings' Corn Planter, did not arrive until the third day of the Exhibition. This implement your committee deem worthy of particular notice, and believe that, when it shall be constructed of less weight and better finish, it will be appreciated by the farmers of Massachusetts, as well as by those of Nova Scotia, where it was invented.

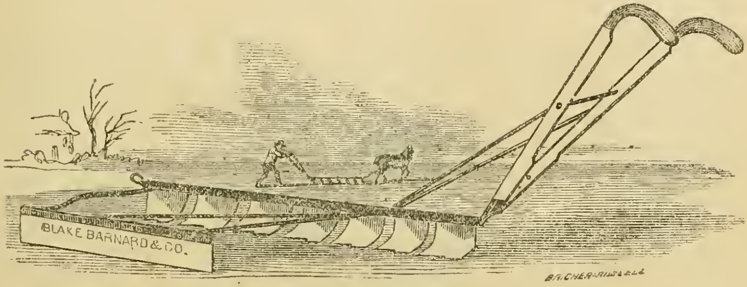
FIELD ROLLER, FOR GENERAL USE.—We had no hesitation in giving the preference to the Roller presented by Nourse, Mason &

Co. This consists of five iron rollers on one shaft. It is an implement of great power, is capable of being loaded to any extent that may be desired, and cannot fail to do its work effectually. Were it used, in the early spring, upon mowing lands or grain fields, where the surface has been thrown by the winter frosts, it would return the plants to the earth, where many of them would take root and vegetate, instead of perishing from exposure to the sun and air, and thus what is termed winter-killing, would be, in a degree at least, prevented, as well as the convenient working of the mower and reaper greatly promoted.

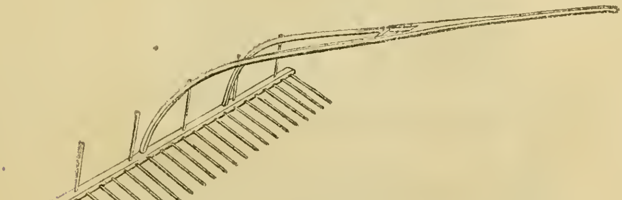

KEYSTONE CIDER MILL.
HICKOK'S PATENT.
Nov. 20 1855.

Entered by Parker, White & Gannett.

Hand Implements.—In hand implements for working the soil, such as shovels, spades, forks, potato diggers, hoes, scufflers, wheel hoes and garden tools, an almost countless number and variety were presented. In these instruments, the combination of strength and lightness is attained in the highest degree. The amount of muscular exertion thus saved to the laborer, is beyond computation. In the perfection of their finish they are all that can be desired. With such implements, the laboring man can accomplish his work with incomparably more ease, comfort and success, than is possible with heavy, coarsely-made tools. In the manufacture of such implements, Partridge and Ames have long possessed an enviable reputation, and are not only forging for themselves an independent fortune, and rolling out an honorable escutcheon for the mechanics of the State, but are conferring an immense benefit upon the agriculturists of the whole country.



Ice Cutter—Entered by Blake, Barnard & Co.



Leafer Rake—Entered by Parker, White & Gannett.

Scythes, Snaths, Grain Cradles and Rakes.—In these implements we know not that any thing further can be desired. There is every form and size that utility or fancy can demand.

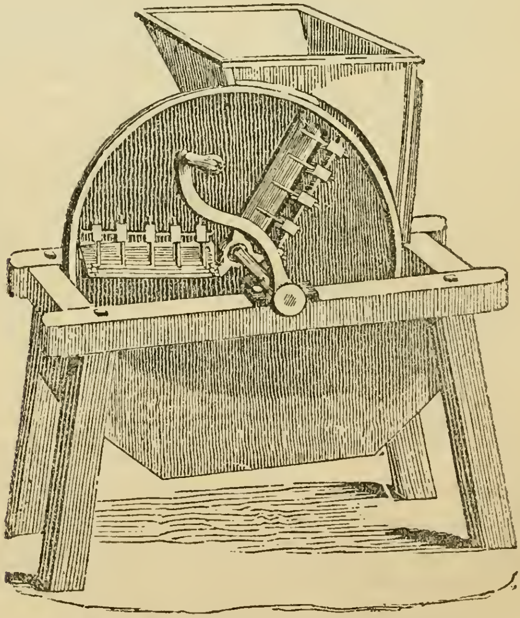
Absolute perfection, in material and temper, is aimed at by our manufacturers, and if competition and constant effort can enable them to arrive at it, they will not fail of success.

A snath, presented by Blake, Barnard & Co., with an ingenious thumb-screw fastening, is deserving of approbation, as is Stevens' Patent Iron Snath, presented by Nourse & Co.

Hand rakes, of the best ash timber and of the most beautiful finish, were found in all the collections.

Had our mothers used instruments as light, elastic and polished as these, when they accompanied their fathers and husbands to the hay-field, we opine that they would have taught their use to their daughters, and that it would not have been as rare a sight as it is at the present day, to see the wives and daughters of the farmer cheering his labors by their presence. If any rakes can tempt the ladies into the field, we are sure it must be such rakes as these. Several patterns of horse rakes were presented, each of which has its excellences, and its friends, and all of which are capable of performing good work.

Hay Cutters.—Several patterns of hay cutters and stalk cutters were exhibited. Gale's Eagle Stalk Cutter and the Self-sharpening Hay Cutter appeared to us deserving the preference, and we accordingly awarded to them the premiums.



Vegetable Cutter—Entered by Parker, White & Gannett.

Vegetable Cutters.—The best one presented to our notice, was in the collection of Nourse, Mason & Co. This does its work with rapidity and ease, and leaves the vegetables in a better state than any cutter with which we are acquainted. The knives are short and semi-circular in form, and reduce the vegetables almost to a pulp.

Churns.—We award the premium to Tyler's Patent Churn. This has been sometime in use, and we believe all who have used it give it the preference.

Ox Yokes.—An instrument of this description was presented by Blake, Barnard & Co., the beauty and comfort of which must be appreciated by the patient animal for which it is designed, if he has a tithe of the good taste, which he has of patience and perseverance. It must be comparatively a pleasure to wear such a yoke.

Thresher and Grain Cleaner.—This is a complicated implement, and performs several distinct operations simultaneously. It is precisely one of those machines that suggest to us the want of a farm steam engine, and we understand that a similar implement, or at least, one that does similar work, is driven by an engine in several places at the west. This machine affords evidence of much thought and ingenuity, and in the grain growing sections of the country, must be of inestimable value.

Best Pump for Farm Use.—An ingenious pump, which acts both as a suction and force pump, was presented by Blake, Barnard & Co. The piston of this pump works horizontally. It works easily, and does not seem likely to get out of gear. The valves consist of India rubber balls, instead of the common clapper. It is easily protected from the frost. We think the inventor must have seen Lewis' or Davidson's Syringes, for it is, in fact, an iron syringe applied to the moving of water. We think it will prove an implement of great value. It may be used for all the purposes of a garden engine.

Miscellaneous Articles.—In addition to the articles we have enumerated, there was a legion which we have not enumerated, besides a long list of miscellaneous articles, which were referred to another committee, all which afford proof of the ingenuity of their inventors, and the skill of their manufacturers. Many of them are instruments of much value, and they all afford evidence, if indeed that were not already a fact of world wide notoriety, of the versatility of Yankee intellect.

In closing their report upon this department of the exhibition, your committee remark, with much pleasure, that they were seldom annoyed by the pertinacity of exhibitors, who insisted upon demanding for their individual articles an undue proportion of their time and attention. They were uniformly treated with polite regard, all their inquiries were definitely answered, and all their requests complied with. The whole exhibition was conducted with perfect order, and afforded us the highest satisfaction, and was in all respects honorable, not only to the exhibitors themselves, but to the whole Commonwealth.

The following is the list of premiums awarded by the judges on farm implements:—

To Nourse, Mason & Co., for the best collection of Agricultural and Horticultural Implements, Diploma and $50; To Blake, Barnard & Co., for second best collection, $40; To Parker, White & Gannett, for third best collection, $30.

To Nourse, Mason & Co., for the best assortment of Ploughs, Diploma or Medal.

To Nourse, Mason & Co., for Steel Tooth Harrow, $3.

To H. Hall, Ohio, for Rotating Harrow, $3.

To Nourse, Mason & Co., for Knox's Gang Cultivator, $5.

To Nourse, Mason & Co., for best Horse Hoe, Knox's patent, $5.

To Nourse, Mason & Co., for Howe's Drill Barrow, $5.

To Nourse & Co., for Billings' Corn Planter, (Horse,) $5.

To Nourse, Mason & Co., for best Field Roller, $6.

To H. Partridge, for six best Potato Diggers, $2.

To Nourse & Co., for Gale's Corn-stalk Cutter, $5.

To Parker, White & Gannett, for Self-sharpening Hay Cutter, $5.

To Burt, Wright & Co., Harvard, for best Single Horse-Power, $10.

To Parker, White & Gannett, for best Double Horse-Power, $10.

To Nourse & Co., for Stevens' Iron Scythe Snaths, $2.

To Blake, Barnard & Co., for Scythe Snath, $2.

To H. Partridge & Co., Medfield, for best Manure Forks, $2.

To Nourse, Mason & Co., for best Vegetable Cutter, $5.

To Blake, Barnard & Co., for 12 Pratt's Axes, $5.

To Nourse & Co., for best Churn, (Tyler's,) $5.

To Blake, Barnard & Co., for best Ox Yoke, $5.

To Blake, Barnard & Co., for best Pump for farm use, $5.

To Nourse & Co., for best Portable Saw Mill, $10.

To Parker, White & Co., for Whitman's Separator and Cleaner, $5.

To Nourse & Co., for Grant's Fanning Mill, $5.

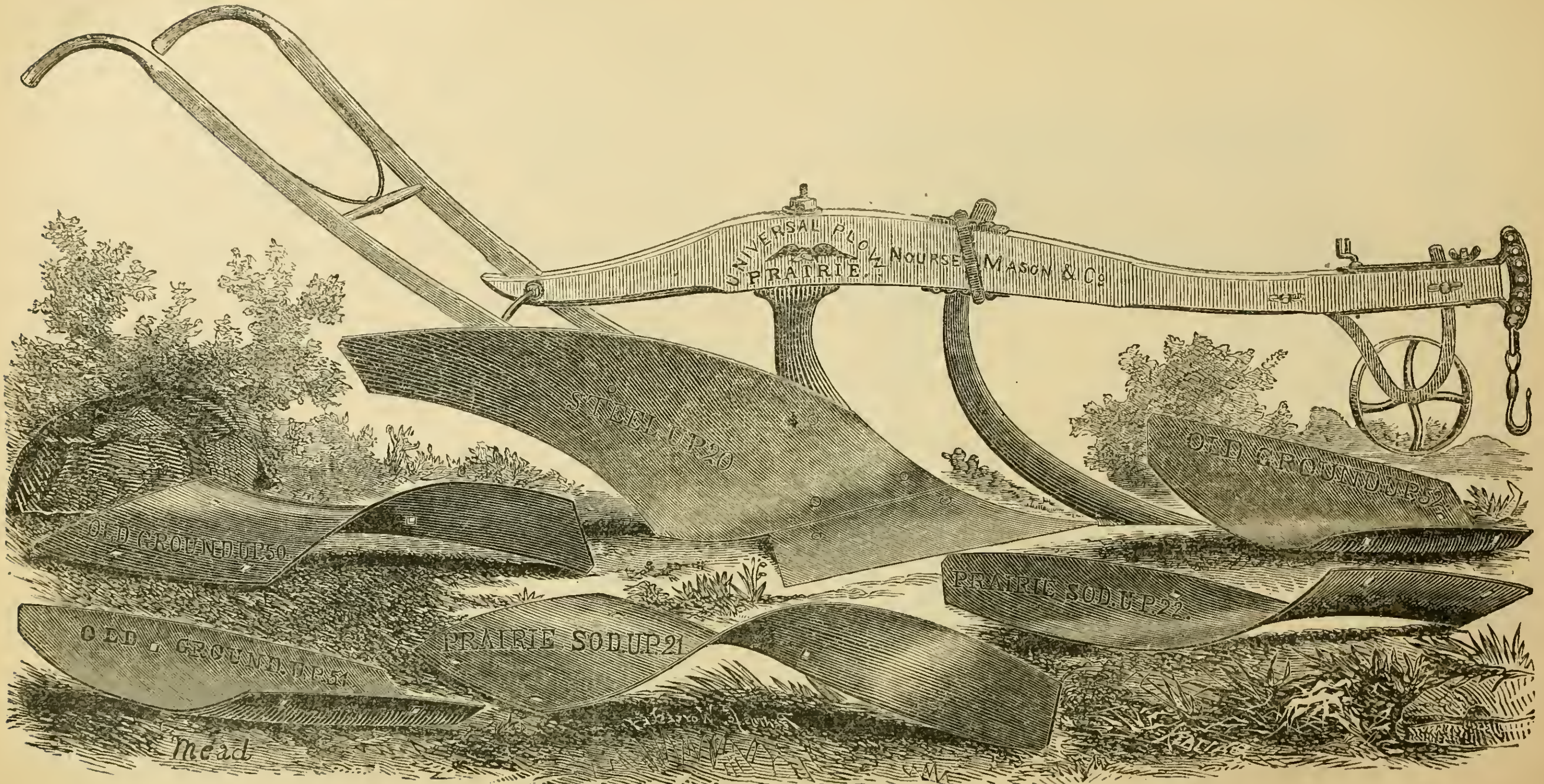
To Nourse, Mason & Co., for best collection of Baskets, $2.

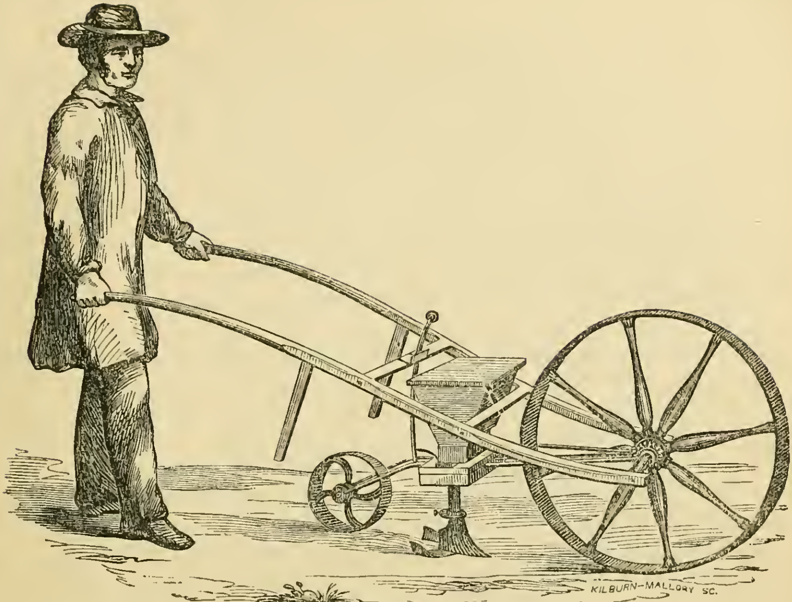
To. J. W. Crosby, of North Bridgewater, for 6 Garden Hoes, $1.

All of which is respectfully submitted,

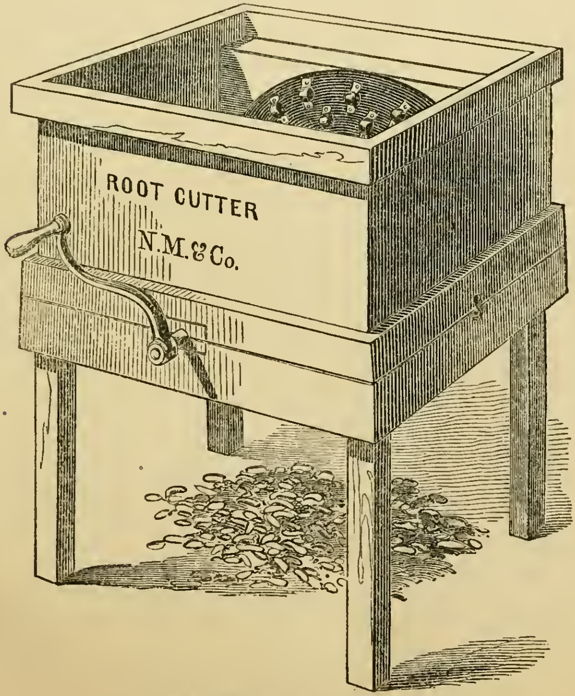
For the committee,

JOSEPH REYNOLDS.


UNIVERSAL PLO 4
PRAIRIE
NOURSE MASON & Co
STEEL UP 20
OLD GROUND UP 50
OLD GROUND UP 52
PRAIRIE SOD UP 22
OLD GROUND UP 51
PRAIRIE SOD UP 21
Mead


KILBURN-MALLORY SC.

Seed Sower—Entered by Nourse, Mason & Co.


ROOT CUTTER
N.M.&Co.

Root Cutter—Entered by Nourse, Mason & Co.

MISCELLANEOUS ARTICLES.

The sum of two hundred dollars was set apart to be awarded in discretionary premiums for articles not enumerated in the preceding classes, and which should be found worthy of merit.

Ample opportunity was given also, for the exhibition of implements, machinery, &c., offered without reference to any of the above premiums, but for exhibition only.

The following is a list of entries of miscellaneous articles:—

No. 1.—Adams's Bean and Potatoe Assorting Machine, by Sanford Adams, Boston.
2.—Adams's patent Coal Sifting Machine, by Sanford Adams, Boston.
3.—Knapp's patent Lamp, by E. F. Jones, Boston.
4.—Farmers' Gate, patent, by L. D. Woodbury, Craftsbury, Vt.
5.—Chinese Sugar Mill, by Lyman Kinsley, Canton.
6.—Abby's patent Pig-Pen, by Cushman & Marston, Brighton.
7.—Corn Husker, by Alden Graham, Roxbury.
8.—Winter Garden, by Mrs. Wm. Ashby, Newburyport.
9.—One set of Ice Tools, by T. A. Brown, North Cambridge.
10.—Broadcast and Drill Seeding Machine, by John Warren, Boston.
11.—Refrigerator, by Charles Winship, New Haven.
12.—One case of Insects, and of Vegetable Eggs, by F. G. Sanborn, Andover.
13.—Illustrations of Sexuality in Minerals, by E. Sanborn, Andover.
14.—One Protective Bee Hive, stocked with bees, and one model Protective Bee Hive, and six boxes of honey, and show-case of comb and bees, by Henry Eddy, North Bridgewater.
15.—One model Coal Sifter, and one model of a Self-feeding Stall, for horses, by Henry Eddy, North Bridgewater.
16.—One Truss of Pop-Corn, for exhibition, by H. Eddy, North Bridgewater.
17 —One Granulating Mill, by E. Richmond, Boston.
18.—Torrey's Self-adjusting, Double-action Door Spring, by Thomas Bruton, New York.
19.—Kerosene Oil. By Thomas Bruton, New York.
20.—American Solidified Milk, by H. C. Brooks & Co., Boston.
21.—Telescope, by William Grosser, Boston.
22.—Assortment of Boots and Shoes, by Edward Harney, Boston.
23.—Three Bee Palaces, or combination bee hives, by George Calvert, Upperville, Va.
24.—Largest lot of Honey, yield of one brood of bees, by George Calvert, Upperville, Va.
25.—Lot of Drain Tile, by James M. Crafts, Whately.
26.—Surveying Instrument, by George D. Varney, Newburyport.
27.—Lot of Carving Knives and Sharpeners, by John Stinson, New York.

No. 28.—Assortment of Boots and Shoes, by Balch & Page, Groveland.
29.—Lot of Cranberry Rakes, by Blake, Barnard & Co., Boston.
30.—Ox Bows, finished, by Blake, Barnard & Co., Boston.
31.—Mounted Grindstone, by Blake, Barnard & Co., Boston.
32.—Fay's Hand Hay Press, by Nourse & Co., Boston.
33.—Hall's Stump Puller, by Nourse & Co., Boston.
34.—Corn Husker, by Nourse & Co., Boston.
35.—Bundy's Potato and Corn Planter, by J. W. Wiggin, Boston.
36.—Lot of Wine, five varieties, by Charles E. Savill, Roxbury.
37.—Oscillating Dash Churn, and patent Window Spring, by C. H. Dana, West Lebanon, N. H.
38.—Sifter for coal cinders, &c., by Neilson & Langley, South Boston.
39.—Leffert Carriage Stove, by J. W. Leffert, New York.
40.—Two lots of Wine, by E. Paige & Co., Boston.
41.—Scales, by Howard & Greenleaf, Boston.
42.—Safe, by J. E. Wilder, Boston.
43.—Cart Harness, by George Springall, Boston.
44.—Hay Protectors, Chases & Fay, Boston.
45.—Two bags of Cotton Seed Meal, by Union Oil Co., Providence, R. I.
46.—One box of Cotton Seed Cake, by Union Oil Co., Providence, R. I.
47.—Specimen of Cotton Seed Oil, Union Oil Co., Providence, R. I.
48.—Native Peanuts, by Sheldon Benson, Wareham.
49.—Native Wine, by E. W. Bull, Concord.
50.—Collection of Domestic Manufactures, by Mrs. Edward Dole, Newbury.
51.—Rugg, by M. O. Hodge, Newburyport.

The judges on miscellaneous articles presented the following

REPORT:

The judges on miscellaneous articles found scope for the full exercise of judicial functions in their department, ranging from a patent pig-pen to a bottle of native wine, and from a hay press to a box of honey.

The first thing on our list of entries was a patent "bean and potato assorting machine." This seemed to be a very useful apparatus. The business is done by a combination of different sized screens admitting the different seeds and sending them to separate boxes. A screen with larger mesh is used for potatoes, which will sprout as well as sort the potatoes. This is for sale at No. 5 Batterman's Block, Lincoln Street, Boston.

A coal sifter was also exhibited by the same. Not so convenient, and more expensive than

Bartlett's sifter, sold by Neilson & Langley, No. 96 Broadway, South Boston, which is cheap and efficacious.

E. F. Jones, Boston, exhibited Knapp's patent lamp, for burning rosin oil; the peculiar construction of which is to form an increased draft to consume the superfluous smoke; it gave a bright and economical light, but hardly equal we think to

The Kerosene oil, exhibited by Thomas Bruton, of New York, which is one of the products of the Breckenridge coal, and affords a very brilliant light at a low cost. Our means of comparing the two, however, were very limited.

"Farmers' gate," by L. D. Woodbury, Craftsbury, Vt. An ingenious arrangement for hanging a gate so that it might be raised or lowered in a moment. The model appeared well, but we could not pronounce upon it without seeing a full-sized gate.

Cushman & Marston, Brighton, exhibited a "patent pig-pen," which is well thought of by some.

Patent "corn husker," by Alden Graham, Roxbury; this worked tolerably, but not equal to

"Corn husker," exhibited by Nourse & Co., of Boston, which with a very little practice would husk the corn quickly and neatly. We however, doubt whether any of these machines will come into general use in New England; but in the West, where the corn is picked, they would save much labor in husking.

Mrs. William Ashby, of Newburyport, sent to the exhibition a very tasty and elegant piece of work of moss, evergreens and perennial flowers, styled a "winter garden."

Set of "ice tools," planes, plough, marker, follower, chisels, &c., showing much skill in the manufacture, was exhibited by T. A. Brown, North Cambridge, Mass.

"Patent refrigerator," by Charles Winship, New Haven, Conn., is so arranged that the ice being placed above the provision chamber the cold air passes over the ice, down through the provision chamber, escaping near the bottom, keeping the provisions cool and sweet.

F. G. Sanborn, of Andover, exhibited a case of 1,000 varieties of carefully preserved insects, a very valuable and useful collection, accompanied by an interesting statement which is appended.

Dr. Henry Eddy, of North Bridgewater, showed a bee hive of his own invention, with all the component parts, the various stages of the bee and its habits, with a very handsome specimen of honey.

Another display of bee hives and culture, was George Calvert's "improved common sense patent premium bee hive," from Upperville, Fauquier, Co., Va. There was a large display of honey made this year. Great advantages are claimed by the inventor—in the raising of bees. protection against the moth, and production of honey. It was as gratifying as unusual, to see from the Old Dominion, such an evidence of ingenuity, and such devotion in this interesting and important subject. We trust the indefatigable exhibitor will receive the substantial encouragement to which his energy and perseverance entitle him.

A model of a "patent horse stall," invented by Dr. Eddy, of North Bridgewater, seemed to possess such excellences as to entitle it to general favor.

"Granulating mill," by E. Richmond, of Boston, was perhaps the most interesting and valuable machine brought to our notice. And seemed to us well adapted for common use among farmers—and the only mill we had ever seen that was. The operation is caused by a set of square-edged blades, on cylinders, which on being turned alternated with another set of fixed blades,—so that corn, oats, and any grain was cut, chipped, or granulated fine enough even for table use; instead of being crushed or mashed as in ordinary mills. The advantage of this in preparing food for stock will be readily perceived by any one who witnesses the operation of this mill.

With the small size, costing $75, one man will grind three bushels an hour; the larger size, adapted for horse-power and costing more, will turn out twenty-five bushels an hour. They are made and sold by Nourse, Mason & Co.

Various sizes of "drain tile," by James M. Crafts of Whately; the advantages of under-draining are now too well recognized to make it necessary for us to say any thing more than that Mr. Crafts makes very perfect tile at his factory in Whately, and furnishes them upon the cars, at such rates, as bring them cheaper to Massachusetts men than the Albany tile.

George D. Varney, of Newburyport, exhibited an ingenious instrument for surveying, combining the advantages of a theodolite, compass, and level, in one.

Beautifully finished boots and shoes, by Balch & Page, Groveland.

Blake, Barnard & Co., of Boston, aside from their fine display of agricultural implements, showed us grindstones, cranberry rakes, and ox bows, all of first rate material, and superior finish.

Fay's "hand hay press," shown by Nourse & Co., of Boston, seemed to be well made and a useful thing, dispensing with horse power, and baling hay at a much less cost than by the old method.

Hall's "stump puller," by the same firm, looked like a powerful machine, and is more portable than most machines for that purpose. We had no opportunity to test its capacity.

A "patent potato planter," entered by J. W. Wiggin, of Boston, did not seem to us as a valuable machine; it may work well.

C. H. Dana, of West Lebanon, N. H., exhibited an "oscillating churn," which seemed to work well. The butter-bringing principle was that of the old fashioned dash churn—a common churn being set into a frame is swung to and fro, while a simple cam motion is thereby given to the dash, which moves up and down with the required speed and perfect uniformity of motion.

J. W. Leffert, of New York, showed a Carriage Stove, for warming the feet in riding, by an alcohol lamp. It has been favorably noticed in the American Institute at New York.

Howard & Greenleaf, of Boston, entered "Fairbanks' Platform Scales," of a world-wide reputation.

J. E. Wilder, of Boston, "Safe" conveniently arranged, neat-looking, and presumed to be fire-proof.

Chases & Fay, of Boston, Hay Caps or Covers, for protecting cocks of hay in foul weather, and should be owned by every good farmer.

Charles E. Savill, of Roxbury, exhibited five varieties of Wine. The Currant Wine was especially good.

E. Paige & Co., of Boston, presented a number of samples of Wine made from the native grape, currants, blackberries, raspberries and elderberries. These gentlemen are making wine on an extensive scale, from native grapes. It is very palatable, and, being pure, is recommended by physicians.

Native Wine, from the famous Concord Grape, by E. W. Bull, of Concord, however, was by far the best wine exhibited. The demand upon Mr. Bull for this favorite vine, has hardly left him enough to manufacture. Last year he made about eighty gallons, which only requires age to make it equal to any sherry, with the advantage of being known to be pure juice. He has kindly furnished us with his method of the manufacture, which is simple, and ought to be understood by every one who has any vines.

The Union Oil Co., of Providence, R. I., sent Cotton Seed Oil which looked clear—Cotton Seed, Oil Cake and Meal. This meal looks well, it is afforded at a much less cost than Linseed Oil Meal, and in the opinion of one of the committee who had used some of it, was equal to that in milk-producing qualities. We should recommend that it be thoroughly tested by farmers. Its composition and agricultural value are stated on a subsequent page.

Sheldon Benson, of Wareham, exhibited some Peanuts grown in that town. They looked handsomely, but whether or not they can be grown profitably we did not learn. A failure of the peanut crop would be severely felt in some quarters most certainly, and the consumers would constitute the largest body of unemployed in this country.

Mrs. Edward Dole, of Newbury, exhibited beautiful specimens of knitting-work, consisting of gloves, mittens, socks, &c., all of which gave evidence of great skill and patience.

Mrs. M. O. Hodge, of Newburyport, exhibited a beautiful rug, and we regret there were not more specimens of that kind of work.

The committee recommend the following awards of diplomas and gratuities:—

To Sanford Adams, South Boston, for Bean and Potato Assorting Machine, Diploma.

To E. F. Jones, Boston, for Knapp's Patent Lamp, Diploma.

To Cushman & Marston, Brighton, for Abby's Patent Pig-Pen, copy of Secretary's Report.

To Mrs. William Ashby, Newburyport, "Winter Garden," Secretary's Report on the Agriculture of Massachusetts.

To T. A. Brown, North Cambridge, for set of Ice Tools, Diploma.

To Charles Winship, New Haven, for Refrigerator, Diploma.

To F. G. Sanborn, Andover, for case of Insects, copy of the Secretary's Report.

To Henry Eddy, North Bridgewater, for Protective Bee Hive stocked with Bees, Diploma; also for Patent Self-Feeding Horse Stall, copy of Secretary's Report.

To E. Richmond, Boston, Granulating Mill, Diploma.

To Thomas Bruton, New York, for Double Action Door Spring, Diploma.

To Thomas Bruton, New York, for Kerosene Oil, Diploma.

To George Calvert, Upperville, Va., Combination Bee Hives, Diploma.

To George Calvert, Upperville, Va., largest lot of honey, copy of Secretary's Report.

To James M. Crafts, Whately, for Drain Tile, Diploma.

To George D. Varney, Newburyport, for Surveying Instrument, Diploma

To Balch & Page, Groveland, assortment of Boots, copy of Secretary's Report.

To Nourse & Co., Boston, for Fay's Hand Hay Press, Diploma.

To Charles E. Savill, Roxbury, for varieties of Wine, copy of Secretary's Report.

To C. H. Dana, West Lebanon, N. H., for Oscillating Dash Churn, copy of Secretary's Report.

To J. W. Leffert, New York, for Carriage Stove, Diploma.

To E. Paige & Co., Boston, for native Wine, Diploma.

To Howard & Greenleaf, Boston, for Fairbank's Scales, Diploma.

To J. E. Wilder, Boston, for Safes, Diploma.

To Chases & Fay, Boston, for Hay Protectors, Diploma, and Secretary's Report.

To Union Oil Co , Providence, R. I., for samples of Cotton Seed Cake, Oil and Meal, Diploma and Secretary's Report.

To Sheldon Benson, Wareham, native Peanuts, copy of Secretary's Report.

To E. W. Bull, Concord, native Wine, from the Concord grape, Diploma.

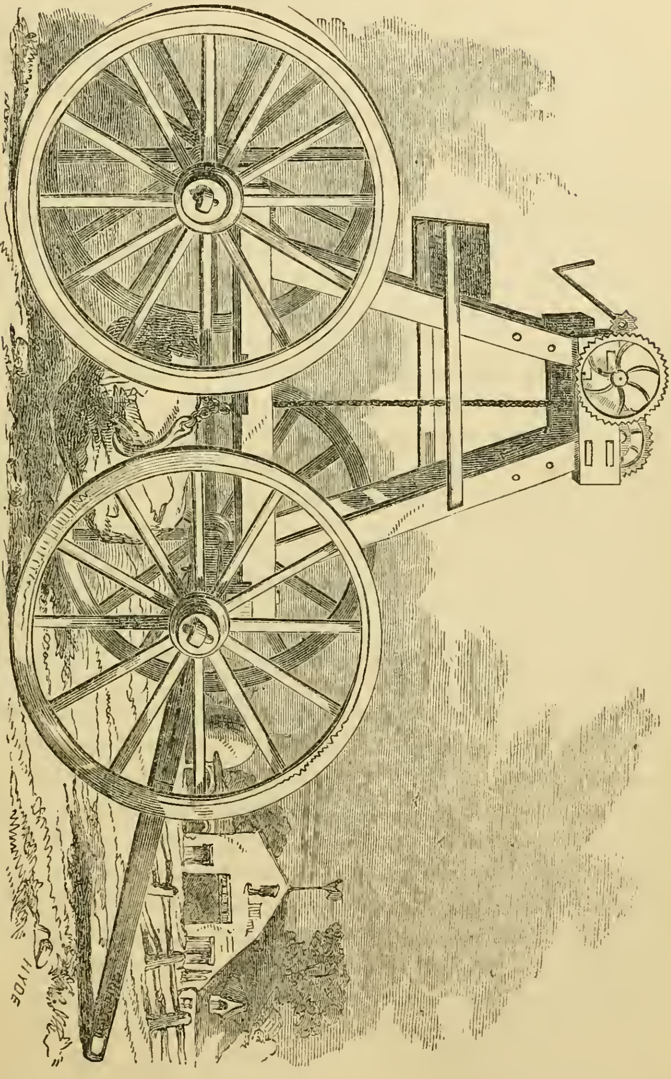
To Mrs. Edward Dole, of Newbury, for specimens of Knitting, Diploma.

To Mrs. M. O. Hodge, Newburyport, for Rug, copy of Secretary's Report.

For the committee,

Samuel Chandler.
John Brooks.
James S. Grennell.

Among the implements entered was a Stone Elevator from the State Farm, at Westboro'. This powerful and simple machine was designed to save great labor in the removing of large rocks, the clearing up of rocky fields, and the building of stone walls. The elevator or digger has such a purchase, especially when fitted with double gearing, that a lad of fifteen years can easily raise a stone of from two to three tons from its natural bed. It will raise stones from five to eight or ten tons, and if the chains were strong enough, the power gained is doubtless considerably greater. It also saves the labor of teams, since one yoke of oxen move a very great weight when suspended from the machine, and this can be dropped over the foundation for a wall, or any where else most convenient. It consists of four upright standards set upon two horizontal beams, which rest upon powerful axletrees. The gearing above can be either single or double, according to the strength desired. The end of the chain is furnished with strong hooks, which, as the crank is turned, causes them to grapple tighter and tighter, so that there is little danger of slipping, especially if a slight indentation is made, by drilling, in the sides of the stone. This machine is easily made. If the wheels were made expressly for it, the whole cost would amount to from one hundred to one hundred and twenty-five dollars, but the hind wheels of a strongly built ox-wagon would answer the purpose and save a considerable part of the expense. The gearing can be cast at any foundry, at a cost of about fifteen or twenty dollars.



Stone Elevator—Entered by the State Farm.

This machine has been used to great advantage at the farm at Westborough, in clearing up several acres of rocky land, from which many hundred tons of large boulders had to be removed.

WINE.—Mr. E. W. Bull, of Concord, with the sample of wine from the Concord Grape, presented the following

STATEMENT:

The wine which I exhibited at the State Fair, on the 20th of October, was made from the Concord grape in 1855 and 1856.

That of 1855 was fermented in the mash tub forty-eight hours before pressing, in order to give to the wine a portion of the astringency residing in the stem and seeds, such wine being considered the best for long keeping. After pressing, the juice was put into a cask and the bung laid lightly on; it was carefully watched during the fermentation, and the cask occasionally filled up with juice saved for that purpose, to supply the waste by working over, the cask being kept full on purpose to work off the scum. This wine has lain upon the lees ever since; it would have been better if it had been bottled at the end of the first year.

The wine of 1856 was pressed from the grapes immediately upon gathering them, and there being too little of it to keep in wood, was bottled as soon as the fermentation was over; it is more delicate than the first, and the delicate aroma of the grape is more distinct in it than in that fermented on the skin and stem.

One pound of sugar to the gallon of juice was added. In some very favorable seasons I think no sugar would be required, while in seasons particularly unfavorable to the grape, more than one pound to the gallon would be needed.

A very convenient and easy test for the weight of the juice, is found by putting a fresh egg into the juice; if it float about one-fifth of its surface above the liquid it is heavy enough, if not, add sugar until it does; the sugar should be refined, to avoid any peculiar flavor which would impair the delicacy of the wine.

To make wine which shall have all the best qualities of the grape from which it is made, the grapes should be fully ripe, free from decayed berries, and pressed immediately; see that the weight of the juice is right, and put into the cask, which should be in place, so as not to disturb the wine, and should be perfectly clean.

A brisk fermentation makes the best wine; if it is too cold to secure this, warm a few gallons of the wine to 120 degrees of Fahrenheit, so as to bring the temperature of the whole body to 65 or 70 degrees. Stop up tight as soon as you think it will do. I have never found it necessary to add any thing to the wine to fine it; it has always worked itself fine and been fit to bottle at the end of the first year. I never add any kind of spirit.

After all, wine making is an art which is not to be acquired in a day, for although the principles which govern fermentation are immutable, yet so many circumstances of soil, and season, and quality of grape, occur to modify the rule of the case, that much practice and skill are required to insure the desired result—a sound wine.

Wine making is in its infancy in this country, but I venture to predict that the man is now born who will see New England supplying herself with native wines, and even exporting them.

ENTOMOLOGY.—On this subject Mr. F. G. Sanborn, of Andover, presented, with his large case of insects, the following

STATEMENT:

The increased interest which this important subject is now exciting not only among scientific men, and students of nature, but also among those whose interests are inseparably connected with the agriculture of the community, demands our attention. If, after having contracted to his service the labor and produce of every choice breed of stock under the sun, and procured for his benefit every new and improved labor-saving machine on the face of the globe; if, after having expended heaps of gold and silver in obtaining new and approved manures for the formation of his compost-heap, the farmer still finds that his efforts are naught, that all his labor and expense is rendered useless by the depredations of some tiny insect, then most certainly he should himself either study the works and ways of these little pests in order to know best how to meet their attacks, or employ some one to do it for him. The former of course is most desirable, as besides the advantages of such acquirements in a business point of view, the knowledge of nature and the pleasure to be gained by them, are strongly apparent to any one who has paid the least attention to this fascinating study; but if it is incompatible with the other avocations of the farmer, as of necessity it must be with a large proportion, why should not one or more entomologists be appointed to every town and village, who should be prepared to describe the destroyers of agricultural products, to classify and name each specimen brought to them for examination, and direct the best means of treating it. Such a plan, if carried out, would not be destitute of its advantages; and something of this kind should be devised and maintained, and esteemed as important and necessary a post as that of postmaster or town clerk. For the myriads of insects which abound in this State, as in all other places, a large amount of nutriment must be required, and it is a matter of great moment to the farmer whether he is obliged to supply this from his garden, his field, his orchard, and his woodlands, or whether they obtain their subsistence from their own resources ; therefore he should be enabled to distinguish between those which are beneficial, and those which are injurious, in order that he may treat the one as friends and the other as enemies. Among the latter, one of the most hurtful and dangerous to his interest is the apple tree borer, the *Saperda bivittata*, of Say. This insect, which is most destructive to the apple and quince orchard in its secondary stage, is probably well known to every agriculturist, in the shape of a yellowish white grub about half an inch in length, with a small blackish head quite hard and horny ; it is destitute of feet and moves by contracting the rings of its body. It bores upwards from the root of the tree or the base of the larger branches (where the egg had been laid) nearly one foot, during the two or three years that it remains in that stage, and about the first of June, directing its hole outwards, it undergoes its second transformation, concealed only by the bark ; then the beetle gnaws its way through, comes forth and lays its eggs in turn for the production of another generation. In this last stage very few recognize it even if they see it upon the tree. This probably arises from the fact of its going through all its transformations in the night and remaining concealed among the leaves during the day. The best description of it will be found in "A Treatise on some of the Insects of New England which are injurious to vegetation," by Thaddeus William Harris, M. D. He says: "The upper side of its body is marked with two longitudinal white stripes between three of light brown color, while the face, the antennæ, the underside of the body, and the legs are white. This beetle varies in length from a little more than one-half to three-quarters of an inch." The modes of destroying this pernicious insect are various, but the three following meet with most favor. Fistly, killing by repeated thrusts from a wire inserted into its hole ; the wire may be crooked at the end or barbed like a fish-hook, and so bring forth the grub on its withdrawal. Secondly, cutting it out with a knife or gouge ; but these must be used with a due regard to the safety of the tree, or the remedy may prove worse than the disease. Thirdly, pushing a fragment of gum camphor into the hole and then plugging up the entrance with soft wood, has been recommended ; in this method the bark for an inch or less in diameter should be removed by a sharp knife where the infallible signs of its presence are detected in the shape of a small heap of reddish saw dust adhering to the bark. Any of these means if thoroughly and carefully attended to, would produce a corresponding benefit in the orchard, but owing to the insidious character of this insect they must be annually followed up with the same perseverance and industry in order to be permanent.

Another insect of the beetle tribe has of late years been most troublesome to the nurseryman or market gardener, who attempts to raise certain kinds of stone-fruit, as plums, cherries, &c., and has even extended its depredations to apples. I refer to the plum weevil or curculio, *Rhynchænus Nenuphar.* As this insect is described at length in the previously mentioned treatise, and has been frequently noticed and commented upon in other agricultural publications, it is only necessary to say, that it is a small beetle about one-fifth of an inch long, having a snout curved downwards, with which it makes its crescent-shaped punctures in the fruit in order to deposit its eggs. It is of a dark brown color, rough and hard in texture, and has the power of contracting itself so completely into the shape of a dead bud, when disturbed, as to deceive often the most experienced eye. The grub when hatched, so injures the young and tender fruit by its gnawing, that it drops upon the ground before it is half ripe, and decays, while the grub enters the ground to complete its transformations. The only method of arresting their ravages with any degree of success, seems to consist in jarring the trees, when they first begin to appear, by heavy blows, while the weevils, bitten plums, and other insects, if there be any, fall into a sheet held underneath and may be collected and burned ; this operation should be repeated morning and evening during the weeks of their stay.

Another small beetle, the *Crioceris trilineata*, often greatly injures the potato by consuming the leaves of the plants, causing them, if in great numbers, to turn black and wither. While in the beetle state it is of a light yellow color about one-quarter of an inch long, with two black spots on the thorax, and three black stripes on the back, and has the power of making a creaking noise when held in the fingers. These lay their eggs on the underside of the leaves about the middle of June, and in about a fortnight there is hatched from these a fat yellow grub, with a blackish head and two black spots on the top of the first ring ; they have six legs and crawl sluggishly over the plant, covering that as well as themselves with their filthy excrement. When they have finished eating, which is generally in about a fortnight, they crawl down the stem into the ground, whence in another fortnight they reappear in a second brood of beetles in August ; these again lay their eggs, the grubs from which enter the ground in the fall and remain during the winter before their final change into beetles. Lime, in fine powder, has been thought beneficial in checking these devourers if dusted on the leaves after a rain, or early in the morning before the dew is off; and brushing them from the plants into pans full of salt and water or vinegar, has been approved ; but this must prove unavailable in large extents of ground. The field for new discoveries in this line is open, and any one who finds a new and practicable means of diminishing the number of this or any other of these little destructives, will be considered in the light of a public benefactor.

It is impossible, of course, in a paper of this kind, to enumerate one-quarter of the insects which are productive of injury to the crops, and I will mention but one more, which, although one would think we were sufficiently well acquainted with, yet some of the inquiries received the past summer show an almost incredible ignorance of its habits.

The common apple tree or lackey caterpillar, *Clisiocampa Americana*, of Harris. The eggs of this moth can be seen in the fall and winter, in great numbers, clustered around the small twigs of apple, wild cherry, and other trees, covered with a water-proof varnish to withstand the winter storms, and now should be the time for destroying them by examining the trees and removing the eggs ; these should be collected in boxes and burned. If suffered to remain, in the following April there will begin to come forth from these eggs crowds of little woolly caterpillars, which assemble in the nearest and most commodious fork of the tree and begin to build their tents, from which they make regular forays in fine weather, and devour every leaf in a very short space of time, while they increase correspondingly in size until they measure two inches in length, have a glossy black head, a long white stripe on the back, a dark yellow one on each side, then a broad black one, and lowest a narrow yellow one. After they are full grown they spin their cocoons—which appear as if sprinkled with flour of sulphur—in cracks and crevices of fences, &c. In about a fortnight the moth comes forth of a reddish brown, with two white lines across each upper wing. The distance from the tips of the wings when expanded, averages an inch and a half. Among the various methods suggested, for the destruction of the caterpillar after it has been suffered to escape from the egg, the most efficient, next to removing the nest by a grasp of the hand and crushing it, is to insert a long-handled brush into the nest, and twisting it round, bring the whole to the ground and crush it underfoot; a mullen-head attached to a pole, is a tolerable substitute, or a mop of rags, or sponge saturated frequently with " strong soapsuds, strong whitewash or cheap oil." This should be repeated as often as once a week while the caterpillars remain on the trees, early in the morning, at noon or at night, and will produce a corresponding diminution in their ranks, still the most expeditious and the cheapest way, is to remove them while in the egg.

Among the insects that may be considered aids to the farmer—as they annually destroy thousands which are hurtful to him—are the dragon-flies or devil's needles, as they are familiarly called; spiders, several species of flies, (including the lace-wing, *Chrysopa perla*, which subsists entirely on plant lice during its larva stage, and devours an incredible number annually,) nearly all of the extensive tribe of wasps, hornets, ichneumon flies, &c., several varieties of beetles, together with others whose influence is less direct. The ichneumons (a tribe nearly allied to the wasps) contribute greatly to keep within bounds the exuberance of insect life, and none more so than those which deposit their eggs beneath the skin of living caterpillars, whose fleshy bodies afford the young larva of the ichneumon a plentiful supply of food until arrived at maturity, when, bursting through the skin, they leave the caterpillar disabled from completing its transformations, and thus prevent the birth of multitudes the following year.

In this connection, although perhaps not strictly in place, I would advert to the best and most available protection against these enemies, that of encouraging and protecting in our turn the feathered tribes, whose eyes are sharper than the most keen-sighted hunter's, in spying out the lurking places of grubs and worms, whose size enables them to penetrate places inaccessible to the bulkier form of man, and whose powers of flight permit them to pick off the spoilers from the remote tops of trees, or to capture those whose wings would otherwise afford them the means of escape. Let us cherish the birds, and remain assured that, for every one we shall invite to our homes by building them nest-boxes, or by guarding them from prowling cats, or still worse, the firearms of sportsmen, we shall be amply repaid in the immunity of our crops, not to mention their sweet music, which will continually cheer and enliven our dwellings.

Of the specimens of cotton-seed cake and meal it may be proper to state, as the article is comparatively new, that a reliable analysis has been made of it by Prof. S. W. Johnson, of Yale Analytical Laboratory, at the request of Henry A. Dyer, Esq., Secretary of the Connecticut State Agricultural Society, and the results were given in a letter to Mr. Dyer, as follows:—

Dear Sir:—Respecting the sample of cotton-seed cake, received from you for chemical examination, I have the honor to report, that its composition is not inferior to that of the best flax-seed cake, and in some points its agricultural value surpasses that of any other kind of oil-cake of which I have knowledge, as will appear from the following statement of its composition compared with linseed cake. No. I. is the cake you sent me. No. II., analysis of cotton-seed cake by Dr. C. T. Jackson. No. III., analysis of cotton-cake, by Dr. Anderson at Edinburgh. No. IV., average of eight samples of American linseed-cake. No. V., Meadow grasses, Saxony, Dr. Wolff.

	I.	II.	III.	IV.	V.
Water, ...	6 82	–	11.19	9.23	16.94
Oil, ...	16.47	–	9.08	12.96	–
Albuminous bodies, . . .	44.41	48.82	25.16	28 28	10.69
Muci'aginous and Saccharine matters, ...	12.74	. .	48.93	34.22	40.11
Fibre, ...	11.76			9.00	27.16
Ash, ...	7.80	8 96	5.64	6 21	5 04
	100 00		100.00	100.00	100.00
Nitrogen, ...	7.05	7.75	3.95	4.47	–
Phosphoric acid in ash, . .	2.36	2.45	–	–	–
Sand, ...	.94	–	1 32	–	–

The two points of interest before us are, the *nutritive* and the *manurial* value of this cake. With reference to both, chemistry and practical results agree in their conclusions. The great value of linseed-cake, as an adjunct to hay for fat cattle and milch cows, has long been recognized; and is undeniably traceable in the main to three ingredients of the seeds of the oil-yielding plants. The value of food depends upon the quantity of matters it contains which may be appropriated by the animal which consumes the food. Now, it is proved that the fat of animals is derivable from the *starch*, *gum* and *sugar*, and more directly and easily from the *oil* of the food. These four substances are, then, the *fat-formers.* The muscles, nerves, and tendons of animals, the fibrine of their blood, and the curd of their milk, are almost identical in composition, and strongly similar in many of their properties, with matters found in all vegetables, but chiefly in such as form the most concentrated food. These *blood* (and muscle) *formers* are characterized by containing about 15½ per cent. of nitrogen; and hence are called *nitrogenous substances.* Since albumin (white of egg) is the type of these bodies, they are often designated as *albuminous bodies.*

The bony framework of the animal owes its solidity to *phosphate of ime*, and this substance must be furnished by the food. A perfect food must supply the animal with these three classes of bodies, and in proper proportions. What proportions are the proper ones, we have at present no means of knowing with accuracy. The ordinary kinds of food for cattle, contain a large quantity of vegetable fibre or woody matter, which is more or less indigestible, but which is indispensable to the welfare of the herbivorous animals, as their digestive organs are adapted to a bulky and rough food. (See analysis V.) The addition of a small quantity of a food rich in oil and albuminous substances, to the ordinary kinds of feed, has been found highly advantageous in practice. Neither hay alone, nor concentrated food alone, gives the best results. A certain combination of the two presents the most advantages.

For fattening animals, and for increasing the yield and quality of milk, linseed-cake has long been held in high estimation. This is to be expected from its composition. The muscle of flesh and the curd of milk are increased in quantity, because the albuminous substances of the linseed constitute an abundant and ready source of them; the fat of the animal and the butter of the milk are increased by the presence in the food of so much oil and mucilaginous matters.

A year or two since Mr. M'Lugan, of Scotland, reported in the Journal of the Highland Society, some trials on the value as food of linseed-cake, cotton-seed cake, and bean-meal. Analysis III. represents the composition of the cotton-cake; IV. that of the linseed-cake. The bean-meal has 25 per cent. of albuminous matters, but 1½ per cent. of oil, and correspondingly more of the bodies that have the same nutrient function as the mucilaginous and saccharine matters. Six animals of nearly equal size and quality were fed during three months in winter, with all the turnips and straw they would eat, and in addition, two of them received daily four pounds of linseed-cake, two, four pounds of cotton-seed cake, and two, four pounds of bean-meal. The animals thrived as well on the cotton-seed cake as on the other kinds of food—as shown by their appearance, and by their weight when slaughtered.

When linseed-cake is fed in too large quantity, it purges the animal. The quality of beef is excellent when the daily dose of oil-cake does not exceed six pounds for an animal of 700 pounds. Cases are on record where more than this quantity has spoiled the beef, giving it a *taste like tallow.*

Probably like results would follow excessive feeding with cotton-seed cake. In the best cotton districts of India, the cotton-seed bears a high value as food for fat cattle. I know of no experiments with it on milch cows, but it is to be expected that here also it will have the same effects as linseed-cake.

A Bavarian farmer has recently announced that heifers fed for three months before calving with a little linseed-cake, in addition to their other fodder, acquire a larger development of the milk vessels, and yield more milk afterwards, than similar animals fed as usual. Cotton-seed cake must have an equally good effect.

Some of those who have used cotton-seed cake have found difficulty in inducing cattle to eat it. By giving it at first in small doses, mixed with other palatable food, they soon learn to eat it with relish.

On comparing the analyses II. and I., with the average composition of linseed-cake, IV., it will be seen that the cotton-seed cake is much richer in oil and albuminous matters than the linseed-cake. A correspondingly less quantity will therefore be required. Three pounds of this cotton-seed cake are equivalent to four of linseed-cake of average quality.

The value of the article in question as a manure, is very obviously considerable. The dung of cattle, &c., fed upon it, will be greatly richer, both in nitrogen and phosphates, than that of animals fed on hay alone. Where stock is kept, probably the best manner of using this cake as a fertilizer, is to feed it to the cattle, and carefully apply the manure they furnish. In this way, whatever is not economized as fat or flesh, will be available as manure.

In England and on the continent of Europe, linseed and rape-cake have been used directly as a dressing for the soil, and with results fully equal to what is indicated by their composition. These kinds of cake decompose readily, and their effect is usually finished in one season. Five hundred to six hundred pounds per acre is considered a good application; more is liable to be injurious. It is found that when applied with the seed, these kinds of cake prevent germination to a considerable degree; but if applied a week or so previous to sowing, this detriment is not encountered.

The cotton-seed is often employed in the Southern States, with good effects, as a manure for Indian corn, &c. I do not know whether like rape and linseed-cake, it destroys the seed. For manuring purposes, it is about one-third richer than linseed-cake. Its effects are mostly due to the nitrogen it contains, and therefore are similar to those of guano. It is best used in conjunction with other fertilizers. I should judge that a mixture of 400 pounds of this cotton-seed cake with 50 bushels of leached wood-ashes per acre, would make an excellent application for most crops. It is highly important that the cake be uniformly distributed and thoroughly intermixed with the soil.

This cotton-seed cake is doubtless an excellent material for composts, owing to its ready decomposability.

Its commercial value, if calculated from the highest estimates, is as follows: per cwt., 7 pounds nitrogen equals 8½ pounds of ammonia, which at 16 cents per pound, is worth $1.36; 2⅓ pounds phosphoric acid at 2 cents per pound, is 4⅔ cents; together, $1.41. This multiplied by 20 gives $28.20 as the value per ton. If the English prices are adopted, viz., 12 cents for ammonia and 3 cents for phosphoric acid, we have $21.80 as the value per ton. The market price, you say, is $25. Therefore, next to Peruvian guano, this is a substance which, if its composition proves uniform, is most nearly worth what it costs.

Yale Analytical Laboratory, March 16, 1857.

Dr. E. Sanborn, of Andover, presented an ingenious contrivance, to illustrate the influence of magnetism and electricity in the material world, and with it the following

STATEMENT:

This arrangement of magnetic needles, with the accompanying lode-stone or magnetic iron ore, is presented for a place in your exhibition, to invite from farmers, philosophers, and all original thinkers, more general attention to some of the subtle agencies and latent principles of action which exist in nature. Examine, for instance, the powerful chain of attraction between the positive and negative poles of magnetism, or rather magnetism itself and electricity, and the corresponding but no less powerful lever of repulsion which exists between the usually termed positive and positive, and negative and negative qualities. If even one individual is hereby prompted to deeper thought and investigation into the beauty, simplicity and similarity of laws by which the All-wise Artificer controls his wondrous works, and manifests His all-harmonizing and reproducing influences in mineral, vegetable and animal worlds, my object will be accomplished.

The needles, you will please to observe, are equally balanced, and so arranged as to revolve within the circle and sphere of each other's attraction and repulsion. To make the illustration the more life-like, and suggestive to seekers for truth, of the analogy which may exist between the laws of mind and matter, and account for phenommena which sometimes occur in social relations, each point or pole of each needle is made to represent its corresponding sexual distinction. The positive or magnetic ones are distinguished by male, and the others by female attire. In revolving, each coldly repels each, or its similar; that is, positive repels positive, and negative repels negative, and as ardently seeks and attracts each its opposite. The positive seeks the negative and the negative the positive, till, ceasing to move, they stop in a natural, harmonious association and connection, representing one of the brightest links in the

"Vast chain of being which from God began."

Does not the same principle prevail through all matter as the parent of attraction, cohesion, harmony and reproduction? If the lode-stone is reduced to powder each particle still retains its polarity, its innate tendency or desire for reunion.

That,

"All are but parts of one stupendous whole,"

seems not so very incredible. And it seems, too, quite as obvious, that the poet had these agencies in view in a dual capacity, when he says:—

"Warms in the sun, refreshes in the breeze,
Glows in the stars, and blossoms in the trees," &c.

If it be objected to the fairness of this illustration, that the material through which these manifestations are made is solely of the mineral kingdom, it is justly replied, that the vegetable and animal worlds are still more perfect media through which these subtle agents are evolved in correspondingly more refined and elevated conditions. But, whether guiding planets in their orbits, controlling their various motions and revolutions, or causing their cohesion and productiveness, their growth, form and quality of plants and flowers, their germination of seed and fructification of fruit, and all the staminate and pistillate conditions of vegetable life, or rising still upward, through more animated matter, to crown the human race, the glory and masterpiece of creation, with the sacred distinctions of equally balanced association, it is intensely interesting to every inquiring mind.

No student of nature with soul of pure aspiration, can pursue the investigations to which this subject invites, without the most devout admiration of the wisdom which, by so simple laws, sustains unceasing action, revolution, reproduction, and consequent interminable progression.

From what has already been said, together with the lists of entries given under the various classes, it will have been seen that the Fair, in itself, was completely successful, both in point of the quality and the number of the animals and articles exhibited.

The most ample accommodations were furnished by the beautiful mammoth tents of R. M. Yale, of Boston, many of which adorned the grounds, and had the weather proved favorable, they would, of themselves, have fully repaid the trouble of a visit to the Fair. The peculiar state of the times and the lateness of the season, have already been alluded to as operating greatly against the success of the exhibition in a pecuniary point of view. It being known that, on account of the circumstances above alluded to, the income from the exhibition fell short of the necessary expenditures, Messrs. Nourse, Mason & Co., and Blake, Barnard & Co., of Boston, Thomas Motley, Jr., Esq., of West Roxbury, Hon. E. W. Bull, of Concord, and others, very generously and voluntarily relinquished the premiums which had been awarded to them, while the subscribers to the guarantee fund very promptly met the remainder of the deficiency. And thus ended the first State Fair held in Massachusetts for many years, a Fair which, in many respects, was the best ever held in New England, and in some respects, undoubtedly, the best ever held in the United States.

THE STATE FARM.

Operations have been continued as usual on the farm at Westborough, during the past year. Employment has been furnished for about two hundred boys a day, and they have been instructed, so far as practicable, in the details of practical farming. As the object of the farm was, in part at least, to supply the institution with its products, the crops selected were necessarily such as would meet its wants so far as the farm should be capable, and not such as might be found most profitable for boys labor. A large proportion of the labor of the boys was of necessity, therefore, confined to permanent improvements which could make no immediate return either in money or crops. This, though swelling the expenses of the farm, should not be regretted when the employment of the boys in the open air is considered in a sanitary point of view, or when its necessity in an educational point of view is taken into account.

The details of the management of the farm will be found in the following reports of the various committees, which were presented to the Board at the meeting held at the State House on the 8th of December.

The first Report presented was the following from the commitee on

LABOR:

It is now the fourth year since this Board has had the control and management of the State Reform School Farm, at Westborough. The peculiar circumstances under which this farm is held, and the nature of the same, have annually tended to render the expense of carrying it on, much greater than it would have been, had it been owned and carried on by one individual, which should be distinctly understood before an opinion can be correctly formed, whether the money expended by your Committee has been judiciously or otherwise expended.

The State Reform School was located in the town of Westborough from its geographical relation to the other parts of the State. The farm selected bounded upon a beautiful pond, surrounded on three sides by hills, upon one of which the school building was erected, facing the south, and giving a fine prospect of the pond and surrounding country.

The character of the soil nor shape of the farm seem to have been hardly considered by the parties locating the buildings; the land being rough, stony, and either cold and wet, or sandy loam, having for years been devoted chiefly to pasturage; in fact, a fair sample of a New England farm.

The shape resembles a crescent, the buildings being located on one end, giving a range of teaming, on the premises, of nearly three-quarters of a mile; much of the arable land being situated at a distance from the barns. The farm consisted of about two hundred and eighty-five acres of land, walled with stone chiefly, but in a dilapidated condition.

The barns having been built previously to the State Board of Agriculture having possession, are, although well constructed, sadly located for a profitable result in farming, if the remark made by one of our most thrifty farmers in Norfolk County is true, "That the location of the barns on a farm gives the difference in result to the owners, between success and failure."

Upon taking possession of the farm two things appeared prominent,

First. As a Board of Agriculture, the farm should be carried on judiciously, and economically, as good farmers in the State do theirs; also certain experiments with land, manures, crops, cattle, fruit, &c., were expected to be tried, and reported upon, diffusing useful information at the State's expense.

Secondly. The noble object for which the school was founded, by General Lyman, viz; The reformation of erring youth; the education and proper direction of the fatherless, homeless, and forsaken boys, who are daily coming to the notice of the law, was the one great object, in fact, to be always borne in mind which, although second in order, is always first in the minds of the trustees having this peculiar charge, and our Board, who are to all intents assimilated with those gentlemen in this great enterprise.

The first year, 1854, this Board had the charge of the farm, an average of only forty-two boys per day, (taking the year through,) at an expense of eight hundred and seventy-four dollars and ten cents, ($874.10) were employed on the land.

The second year, twenty-five thousand six hundred and fifty-one days' work were performed by the boys, averaging eighty-three per day, at the sum of two thousand five hundred and sixty-five dollars and ten cents, ($2,565.10.)

The third year, an average of ninety-seven boys daily, costing us nineteen hundred and ninety-eight dollars and thirty cents, ($1,998.30,) were employed; while the past year an average of ninety-five boys have been employed daily at a cost of nineteen hundred and sixty-one dollars and sixty cents ($1,961.60) to our Board, making the sum of seven thousand three hundred and ninety-nine dollars and ten cents ($7,399.10.) Of this sum labor has been done for the Reform School in grading, carting coal, &c., &c., to the amount of $797.60, and in permanent improvements on the farm, $2,000, during the year 1857, say $2,797.60, two thousand seven hundred and ninety-seven dollars and sixty cents which should be deducted from said amount of $7,399.10 in estimating the expense of carrying on the farm. (It should be borne in mind that the average of days' work put down were not performed all the year through, but a large proportion done during warm weather, as in 1856 and '57, some two hundred boys were daily employed on the farm.)

This sum of $7, 399.10 having been paid directly back to the State out of the money appropriated towards carrying on the farm, while the equivalent in labor has in no degree been given to us; the main object being the great sanitary benefit which the boys experience from working on the land in the open air, whether engaged in weeding root crops, hoeing corn, or general farm work. Each and all tend to develop the man, educate and direct the mind to some active employment and present some great industrial aim to view which, to boys, can be much more directly brought to bear out-doors, than however otherwise employed in-doors, the latter being the undisputed field for woman.

The general appearance of the farm has from the beginning attracted much attention, and one of the first objects of this Board has been, to remove some of the prominent rocks and stones, to rebuild walls, draining and trenching land, very little of which could be profitably done by children of the age of those which have been employed.

The men we have been obliged to employ were those of good moral character who could govern themselves, and set good examples, as well as physically control the boys under their charge.

To obtain the requisite traits of character, we have been obliged to give much higher prices for equal quality of labor, in other respects, than usually paid by our farmers, and the usual foreign laborers which are employed by our farmers generally, at much less prices, we have been obliged to dispense with.

A schedule of the prices paid by us we annex as follows :—

Samuel N. White, head farmer, per annum,	$650 00
G. L. Rockwood, $32 per month,	387 00
L. P. Chamberlain $23 per month, and board,	85 00
C. F. Fisher, $16.67 " "	194 00
N. Miller, 8 mos., at $20 " "	160 00
S. I. Foster, 8½ mos., at $20, per month, and board,	166 00
H. McNeil, 8 mos., at $18 " "	144 00
C. R. Thomas, 8 mos., at $16 " "	128 00
M. L. Bishop, 4½ mos., at $20 " "	90 00
F. Winslow, 2½ mos., at $18 " "	45 00
P. Holloran, (stone layer,) $1.75 per day,	318 00
I. Doyle, gardener, $1.50 per day,	275 00
C. Hayden, " $1.50 "	210 00
E. T. Brigham, $20 per month and board,	18 35
Board of men, at $3.25 per week,	745 00
Boys' labor to Trustees State Reform School,	1,961 60
Total amount paid for labor, say	$5,576 95

Your committee would suggest that, in future, the Board furnish the provisions and supplies for the help, and let the products of the farm be used in maintaining the same.

We can safely say that, with half the number of men, and one-tenth of the number of boys which we have employed, more actual labor could have been performed and to more profit to the State, so that the great sanitary, corrective, and beneficial interest of the boys have been primarily considered by us, and our head farmer, Mr. Samuel N. White, instead of the pecuniary aim alone.

From the first, this Board have been favored with an excellent head man, Mr. Samuel N. White, who is a practical farmer, having been brought up and always been engaged in the calling; to him we are much indebted for the general detail in the management of the farm.

WM. G. LEWIS.
JUSTUS TOWER.

The following is the Report of the committee on

CROPS:

HAY.—The amount of hay harvested upon the State Farm, including Rowen and Millet, is 115 tons, in the following proportions: English hay, 80 tons; Meadow, 25 tons; Rowen, 8 tons; Millet, 2 tons.

Those lands which received an application of guano, Gould's muriate of lime and gypsum in 1856, produced as good a crop, in quality and quantity, as last year. A few strips of the same land which was top-dressed with guano last year, received an application of the same fertilizer this year, and in every instance the result was an increase of hay. An application of liquid manure to grass lands has been made to considerable extent, and in every instance with good success. Wherever the liquid manure has fallen on grass land it has left its mark, producing hay and feed in abundance.

CORN.—The number of acres planted, not including sweet and fodder corn, is 32. The whole yield (including sound and soft) is 2,228 bushels of ears, or 1,114 bushels of shelled corn, giving an average of 34$\frac{13}{16}$ths bushels per acre. The varieties planted were King Philip, Smutty White or Plymouth, Connecticut River, Loring and Brigham Corn. As compared with last year, we have about two-thirds of a crop.

Of the 32 acres planted, 17 only were upon the State Farm, 15 acres being upon land rented by the committee. The yield of the 17 acres was 1,224 bushels of ears, and was manured as follows:—

Field No. 1, in front of piggery, containing 1$\frac{1}{2}$ acres, received 10 cords of manure from the piggery, per acre, spread on and ploughed in to the depth of 7 inches. The yield was 156 bushels of ears, all sound and good, being 52 bushels of shelled corn per acre. Variety: Brigham Corn.

Four acres on Warren lot received 8 cords of reservoir compost per acre, (consisting of loam, muck and sewerage from the institution,) the same spread and ploughed in to the depth of 9 inches. The yield was 236 bushels of ears, or 29½ bushels of shelled corn per acre. This land was trenched two years ago, to the depth of 15 inches, and all the stones sunk to the depth of 9 inches, since which it has not been highly manured.

Five acres, an old carrot bed, was this year manured with 80 loads (236 gallons each) of liquid manure per acre, 40 loads previous to ploughing, and 40 loads afterwards. Yield 403 bushels of ears, or a minute fraction over 40 bushels of shelled corn per acre. This corn was planted June 3d, but was sound and good. Variety: Connecticut River.

Six and one-half acres on Sibly lot, was manured with 300 lbs. of guano per acre, and produced 429 bushels of ears, or 33 bushels of shelled corn per acre. Variety: Smutty White or Plymouth, a late but prolific variety if highly manured.

Supplementary Report of Corn upon hired land:—

Twelve acres on land of T. A. Smith, produced 720 bushels of ears of the King Phillip variety, being 30 bushels of shelled corn per acre, all of which was of an inferior quality.

This land was manured as follows: Seven and one-half acres (old land) were dressed with 114 loads (28½ cords) equally distributed over the 7½ acres, and 100 lbs. of Coe's super-phosphate of lime, with 50 lbs. of plaster per acre, in the hill.

Four and one-half acres was sod land, but was ploughed in October, 1856, and sowed to rye, the same, however, being badly winter-killed, and what little there was on the ground May 1st, was ploughed in. This land received only 100 lbs. of the phosphate and 50 lbs. of plaster mixed in the hill, per acre. The corn on this new land was much better than that upon the old land.

Three acres on land hired of A. M. Brigham, and manured with 3 cords of manure per acre, ploughed in, and a handful of leached ashes in each hill, produced 285 bushels of ears or 47½ of shelled corn per acre, of the Smutty White or Plymouth variety.

Potatoes.—Whole number of acres planted, 12. Yield, 790 bushels. Varieties: Shenangoes, Jenny Linds, or Lincoln seedlings, Davis seed, Riley or Dover, Worcester seed, long reds and peach blows. Five acres were planted with the three following varieties: Shenangoes, Worcester seedlings and peach blows. The crop was almost a total failure, in consequence of disease, there being only 45 bushels of marketable potatoes from the five acres. Three acres of

Jenny Linds produced 309 bushels of sound, large potatoes, being 103 bushels per acre. One acre of Riley or Dover potatoes produced 80 bushels of good potatoes. One acre of long reds produced 100 bushels of sound but rather small potatoes.

All the 10 acres alluded to above were manured with liquid manure from the reservoir, at the rate of 85 loads per acre, ploughed in, and 200 lbs. of gypsum per acre, in the hill. Two acres planted with Jenny Linds received 165 lbs. of gypsum *only* per acre, in the hill. Three acres in all were planted with this variety and manured as follows: One acre with liquid manure and gypsum, and two with gypsum only. The two manured with gypsum only produced seven bushels per acre less than that manured with liquid manure and gypsum, but the tubers were much larger. The land was of equal fertility, but the two acres which received gypsum only, were more elevated, and consequently dryer. Two acres of Davis seedling, in another field, manured with 300 lbs. of Coe's super-phosphate per acre, in the hill, produced 87 bushels per acre of fine tubers.

Carrots.—Five acres were sown on the plain lot, and the yield was 1,800 bushels, an average of 360 bushels per acre. All this land had been planted with corn the three previous years. Three acres had received yearly 8⅓ cords of manure per acre. One acre had been dressed with guano and one with potash for three years. This year each acre received 85 loads of liquid manure, except a strip 18 feet wide across the end of each of the three acres. This strip received no manure of any kind this year. In addition to the liquid manure, each acre received 11 cords of best barn cellar manure, ploughed in to the depth of 12 inches.

Acre No. 1, which has been dressed yearly with 8⅓ cords of manure previous to this year, and 85 loads of liquid manure and 11 cords of barn cellar manure the present year, yielded 430 bushels.

Acre No. 2, heretofore dressed with guano, and manured this year like acre No. 1, yielded 380 bushels.

Acre No. 3, previously manured with potash, but dressed like the two above named this year, yielded 400 bushels.

The strip of land alluded to above, comprising but a portion of each of the above three acres, yielded as follows: That portion previously manured with guano produced at the rate of 180 bushels per acre.

That portion dressed in former years with potash, gave at the rate of 288 bushels per acre.

The portion which had received manure gave at the rate of 360 bushels per acre.

Two acres more were dressed with the same quantity of liquid manure as the three acres just described, (85 loads to the acre,) and as an additional dressing to one acre of 500 lbs. of Loyd's super-phosphate of lime, and to the other 500 lbs. of guano.

The acre manured with the super-phosphate produced 320 bushels. The acre dressed with guano yielded 270 bushels, an advantage of 50 bushels in favor of the super-phosphate over the guano.

A strip 18 feet wide, in continuation of that before described, but connected with the two acres last spoken of, was dressed with liquid manure only, and yielded at the rate of 225 bushels per acre.

Turnips.—Number of acres sown was four; yield, 1,760 bushels.

Two acres upon the plain lot, manured with 85 loads of liquid manure and 300 lbs. of guano per acre, produced 902 bushels, or 451 bushels per acre.

One acre of Skirving's Swedish turnip, manured with 300 lbs. of guano, produced 385 bushels.

One acre of white French turnips, manured with 8⅓ cords of barn cellar compost, produced 473 bushels of large, fine turnips.

Beets.—The number of bushels of beets, including all varieties, was 285, raised on about one acre of land.

Parsnips.—124 bushels were raised on half an acre of land.

Cabbages.—The number of cabbages raised was 5,000 heads, 2,900 of which were on the trenched land in front of the piggery, and 2,100 from seeds scattered among the onion seed when purchased, and were allowed to grow among the onions.

Onions.—448 bushels of onions were raised upon two acres of ground. One acre on the plain, manured with 50 loads of liquid manure and 8⅓ cords of barn cellar manure and 200 bushels of leached ashes, produced 383 bushels of fine onions and 1,012 heads of drum-head cabbages.

One acre on field No. 1, (trenched land,) manured with 8⅓ cords of barn cellar manure and 300 bushels of leached ashes, produced 110 bushels of marketable onions, a small yield, but as much as could be reasonably expected, since sufficient time has not yet elapsed since the trenching, for the completion of the chemical changes which must be wrought in the upturned subsoil to render such soil productive. The land is, however, in fine condition for future operations, and the results of the deep stirring of the subsoil will be watched with much interest, both by the advocates and opponents of deep ploughing.

Beans.—Seven acres of beans yielded 68 bushels of the white marrowfat variety. Manure, 300 lbs. of guano per acre, harrowed in. Yield, 9$\frac{5}{7}$ bushels per acre.

Buckwheat.—Two acres and a half, without manure, produced 48 bushels, 19$\frac{1}{5}$ bushels to the acre.

Oats.—Five acres on the Sibley lot yielded, without manure, 119 bushels, or 23$\frac{4}{5}$ bushels per acre. This lot was sown with grass seed and looks well.

Fruit.—55 bbls. of good winter ap ples were gathered, and peaches and pears were abundant in proportion.

Sweet and Fodder Corn.—One and a half acres of sweet corn produced well, and was sold green, for the table.

Two acres of fodder corn produced a heavy crop, and was fed green.

Chinese Sugar Cane.—Two acres were planted on light, poor land. The seed vegetated poorly, and the crop had a sickly appearance for some time. In the language of the head farmer of the Farm, "At the last of August, when, varying from one to four feet in height, thinking its appearance no credit to the farm, it was cut down, and first given in small quantities to the cows, and after being repeatedly offered to them, and as often by them refused, it was offered to the oxen; they reluctantly ate a little of it; it was then offered to the horses and they refused to taste it; it was then offered to the hogs, and with the same result."

We quote the experience of our excellent head farmer, because the same result has been experienced by many others, owing to the mistaken idea that the sugar cane was a profitable crop to be fed to stock green. So far as our own experience and observation go, we think the crop of no value as fodder, *until the proper time for making sirup from its juice;* after which period, although dry and frost-bitten, it is eaten very eagerly and with great benefit, by all kinds of stock, and we trust the experiment will be tried again, if only upon a small scale, before it is thrown by as "a humbug."

It will be seen, that the peculiar character of the past season has affected many of our crops very sensibly, but we think not more than those of the State at large, and in the appropriate language of Deacon White, "We, in common with our neighbors, have received the blessings of Providence beyond our deserts, and on the whole the year has been a prosperous one."

In closing our Report, we would respectfully offer to the Board a few suggestions upon some points connected with the cultivation of the farm, and first, we recommend a more careful attention to the preparation and saving of manure.

We think the time has gone by for mere experiments with fertilizers, and we would recommend that no more should be purchased until all the home-made manure, which the great facilities of the farm will allow to be made, has been used.

The reservoir should be drained, in order that it may be thoroughly examined, until the leakage is discovered and prevented. We think its contents should be freely distributed upon the mowing and pasture lands, and *no where else.* We would also recommend, that no more land should be hired under any circumstances, but that the whole attention of the Board should be given to the State Farm. We would also suggest, that the Superintending Committee should be positively required to meet at the farm once every month during the season for farming operations, and that no member of the Board should be considered eligible as a member of the committee, who will not pledge himself to perform this duty.

Respectfully submitted, by

MARSHALL P. WILDER.
JOHN C. BARTLETT.

The experiments on stock, which have been conducted with great care and accuracy, under the direction of a competent committee, will be found to be of great practical value.

It will also be seen from the report that the number of cows which the farm has been capable of keeping, is inadequate to supply the institution with milk. An outlay of about one thousand dollars will be needed for the purchase of additional cows for the coming year.

The following is the Report of the committee on

STOCK:

The committee on stock have made, as directed by the Board, an inventory of the personal property belonging to the State Farm at Westborough. They find the amount to be nine thousand three hundred and forty-four dollars, which will be seen by reference to the inventory annexed.*

The stock on the farm December 1st, consisted of eight oxen, seventeen grade cows, one Hereford cow, one Jersey cow, one Devon cow, one three-year old Hereford heifer, one two year-old Hereford bull, one Hereford heifer calf nine months old, one Jersey heifer one year old, one Jersey heifer calf nine months old, one Devon heifer one year old, one Devon heifer calf nine months old, one grade Devon heifer calf ten months old, one grade Jersey calf nine months old; in all thirty-three head of horn cattle, and we have also five horses. There has been fattened and sold to the institution within the year, four oxen and seven cows, and one cow has been lost by sickness and death. The committee have purchased within the year, six oxen and one horse. The number of swine on the farm December 1st, of all ages, was 79, valued in the inventory at $742; number of hogs sold of all ages, during the year, 96. The food given the swine besides the swill from the school, amounts to $98.40 for the year. For the amount of sales and purchases the committee refer to the account of the Board with the Commonwealth.† The Hereford stock on the farm continues to manifest its ability to withstand our climate, apparently coming to maturity earlier, and therefore better for beef, and quite as good for the yoke. The committee have purchased standing grass for hay to the amount of $80, and have paid out for pasturing $90.84, and have received for pasturing $10.50.

The committee, in February, March, April and May last, made experiments in feeding six cows, with a view of testing, so far as trials so limited in time can test, the comparative value of the food made use of. The details of these experiments are seen in the following tables, and show first, that two and forty-six hundredths per cent. of English hay daily, on the live weight, will keep cows in present condition. The second trial shows that shorts, compared with English hay at $15 the ton, are worth for feed $27 the ton. The third trial shows that meadow hay and corn fodder, as used in this trial, compared with English hay at $15 the ton, is worth three and eighty-four hundredths dollars the ton, or a fraction more than one-quarter the value of English hay. The fourth trial is between shorts and Indian meal, and shows that if shorts are worth $27 the ton, Indian meal is worth $46.54 the ton. The fifth trial shows, that Indian meal at $46.54 the ton, equals carrots at $3.78 the ton. The sixth trial is between meadow hay and corn fodder, and English hay, and shows that English hay at $15.68 the ton, equals the meadow hay and corn at $3.84 the ton—nearly the same result as shown in the third trial. The English hay used in these trials was a mixture of Timothy and redtop, and would be called good English hay. The meadow hay was made up of coarse grasses, such as are common in the Westboro' meadows. The corn fodder was corn cut up by the roots, and consisted of the whole stover. The cows were all with calf, and all gave milk during the whole time of trial.

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* See Appendix, [C.]

† See Appendix, [E.]

Memorandum of feeding six Cows at the State Farm, Westborough, fifteen days, from February 20, to March 6, both inclusive, on cut English hay.

	Delia.	Lady.	Spot.	Redneck.	Kendall.	Flora.	Total.
First day,	24	18	23	21	25	25	–
Second day,	26	22	24	22	28	28	–
Third day,	25	21	22	21	26	26	–
Fourth day,	24	20	21	22	24	24	–
Fifth day,	25	19	21	19	22	22	–
Sixth day,	27	21	23	22	27	27	–
Seventh day,	25	20	21	22	25	25	–
Eighth day,	22	22	22	22	24	24	–
Ninth day,	26	19	25	23	26	26	–
Tenth day,	27	22	22	24	27	27	–
Eleventh day,	28	25	26	25	29	29	–
Twelfth day,	28	26	27	27	28	28	–
Thirteenth day,	28	26	28	27	28	28	–
Fourteenth day,	28	26	28	27	28	28	–
Fifteenth day,	25	24	25	24	25	25	–
Total hay consumed in 15 days,	388	331	358	348	392	392	2,209
Average daily consumption in pounds and hundredths,	22.66	22.66	23.86	23.20	26.06	26.13	–
Average morning and evening w't on the first day of trial,	1,027	1,060	950	880	1,065	1,037	6,019
Average weights on last day of trial,	1,027	1,060	940	880	1,060	1,040	6,007
Average weight for fifteen days,	1,027	1,060	945	880	1,062	1,039	–
Per cent. of hay consumed on live weight, daily,	2.52	2.14	2.53	2.63	2.45	2.51	

These cows consumed in English hay in fifteen days, twenty-two hundred and nine pounds, a fraction over two and forty-six hundredths per cent. on their average live weight daily, and were in as good condition at the end as at the commencement of the trial, having lost only twelve pounds in weight, showing this amount of hay equal to keeping them in present condition.

Memorandum of feeding six Cows at the State Farm, Westborough, fifteen days, from March 7, to March 21, both inclusive, on cut English hay and five pounds of shorts, daily—shorts given dry.

	Delia.	Lady.	Spot.	Redneck.	Kendall.	Flora.	Total.
First day,	25	23	24	23	26	25	-
Second day,	26	25	23	23	28	27	-
Third day,	26	28	23	22	25	28	-
Fourth day,	25	23	23	22	25	25	-
Fifth day,	25	24	24	24	24	25	-
Sixth day,	24	21	23	22	27	24	-
Seventh day,	27	22	25	24	25	27	-
Eighth day,	25	22	23	22	25	25	-
Ninth day,	26	22	24	23	26	26	-
Tenth day,	26	22	25	24	26	26	-
Eleventh day,	26	22	24	22	23	26	-
Twelfth day,	23	21	23	21	25	23	-
Thirteenth day,	24	23	24	23	25	25	-
Fourteenth day,	25	24	24	23	26	26	-
Fifteenth day,	21	24	25	25	26	26	-
Total hay consumed in 15 days,	374	346	377	343	382	384	2,206
Average daily consumption of hay in pounds and hundreths,	24.93	23.06	25.13	22.86	25.46	25.60	-
Average morning and evening w't on the first day of trial,	1,027	1,060	940	880	1,060	1,040	6,007
Average morning and evening w't on the last day of trial,	1,125	1,057	950	920	1,040	1,067	6,159
Average weight for 15 days,	1,076	1,059	945	900	1,050	1,053	-
Per cent. of hay and corn consumed on live weight, daily,	2.32	2.17	2.66	2.54	2.43	2.43	-

In this trial the six cows consumed twenty-two hundred and six pounds of English hay, (three pounds less than in the last trial,) and four hundred and fifty pounds of shorts, and gained in weight one hundred and fifty-two pounds. Supposing the gain in weight to be worth four cents the pound, and to be attributable to the shorts as it fairly may be, the consumption of hay being only two pounds less than in the last trial, the value of the gain in weight would be $6.08, showing the shorts to be worth 1.35 cents the pound, equal to $27 the ton.

Memorandum of feeding six Cows at the State Farm, Westborough, fifteen days, from March 22, to April 5, both inclusive, on cut meadow hay and corn fodder, half each, and five pounds of shorts; three pounds of the hay was wet, and the shorts, when fed, sprinkled over it.

	Delia.	Lady.	Spot.	Redneck.	Kendall.	Flora.	Total.
First day,	25	21	24	22	22	23	–
Second day,	24	21¾	25	22½	22¼	24½	–
Third day,	19¼	16¾	17¼	18½	19	20	–
Fourth day,	19½	20¼	26	25	24	23¼	–
Fifth day,	16½	19	19¼	20¼	20¼	21	–
Sixth day,	16¼	19	18¾	21¼	19½	20½	–
Seventh day,	15	19	18½	19	17½	19	–
Eighth day,	18	19	19	20	18	19½	–
Ninth day,	16	23½	23	23¼	21½	24	–
Tenth day,	15¼	19¼	21¾	22¼	19½	21½	–
Eleventh day,	18½	19¾	21	21¼	22	23¾	–
Twelfth day,	18¼	22¾	24	23¼	25¾	26	–
Thirteenth day,	18	24½	24¼	23¾	25½	25	–
Fourteenth day,	17	18½	23	22½	23¼	23	–
Fifteenth day,	18	19	22	22¼	23	24	–
Total hay and fodder consumed,	274	303	327	327	323	338	1,892
Average daily consumption in pounds and hundredths,	18.26	20.02	21.81	21.80	21.53	22.53	–
Average morning and evening w't on first day of trial,	1,125	1,057	950	920	1,040	1,067	6,159
Average morning and evening w't on last day of trial,	1,047	990	930	892	985	992	5,836
Average weight for the 15 days,	1,086	1,023	940	906	1,013	1,030	–
Per cent. of hay consumed on live weight, daily,	1.68	1.96	2.32	2.40	2.12	2.19	–

The cows consumed in this trial eighteen hundred and ninety-two pounds of meadow hay and corn fodder, and four hundred and fifty pounds of shorts, and lost in weight three hundred and twenty-three pounds, which, at four cents the pound, comes to $12.92. The English hay in the last trial, at three-fourths of a cent the pound, comes to $16.55; deduct from this $12.92, the value of the lost weight which is chargeable to meadow hay and corn fodder, leaves $3.62 as the value of the eighteen hundred and ninety-two pounds of meadow hay and corn fodder consumed in this trial, a fraction over $3.83 the ton, showing the meadow hay and corn fodder to be less than one-quarter of the value of English hay.

Memorandum of feeding six Cows at the State Farm, Westborough, fifteen days, from April 6, to April 20, both inclusive, on cut meadow hay and corn fodder, half each, and four pounds of Indian meal, three pounds of the hay wet and the meal sprinkled over it when fed.

	Delia.	Lady.	Spot.	Redneck.	Kendall.	Flora.	Total.]
First day,	17	21½	24¾	21½	24	24½	-
Second day,	14¼	16½	19¾	19½	18½	19¼	-
Third day,	17	19½	20¾	19½	19¾	20	-
Fourth day,	16	19½	19¾	19¼	19¾	19½	-
Fifth day,	14	21	21¼	22	22¼	20½	-
Sixth day,	13	18¾	20¼	21¼	21¼	20	-
Seventh day,	14	18½	20¼	22¼	21½	20	-
Eighth day,	15	20½	20½	24¾	22½	21¼	-
Ninth day,	11	22½	18	18	23	21½	-
Tenth day,	17	20	19	20	21	19½	-
Eleventh day,	15	21¼	18	21	22½	22¼	-
Twelfth day,	14	19¼	22¾	22¼	22½	22¾	-
Thirteenth day,	18½	22¼	22	22	25	24½	-
Fourteenth day,	18¼	22¼	22¼	24	25	23	-
Fifteenth day,	16	21¾	21¾	22¾	24½	22½	-
Total hay and fodder consumed,	230	305	311	320	333	319	1,818
Average daily consumption in pounds and hundredths,	15.33	20.33	20.70	21.33	22 20	21.26	-
Average morning and evening w't on first day of trial,	1,047	990	993	892	985	992	5,836
Average morning and evening w't on last day of trial,	1,032	980	875	877	977	985	5,726
Average weight for the 15 days,	1,039	985	902	885	981	985	-
Per cent. of hay consumed on live weight, daily,	1.48	2.06	2.29	2.41	2.26	2.15	-

As the feed in this trial is the same as in the last, with the exception of the substitution of meal for shorts, the diminished loss may fairly be attributed to the increased nutriment in the meal compared with the shorts; valuing this diminished loss at four cents the pound, it amounts to $8.52. The consumption of hay in this trial was seventy-four pounds less than in the last, which, at $3.83 the ton, its value, as shown in the last trial amounts to fourteen cents, which, deducted from $8.52, leaves $8.38 as the value of the diminished loss and as the difference between the value of three hundred and sixty pounds of Indian meal and four hundred and fifty pounds of shorts—showing that if shorts are worth $27 the ton, as shown in the second trial, Indian meal is worth $46.54 the ton.

Memorandum of feeding six Cows on the State Farm, Westborough, fifteen days, from April 21, *to May* 5, *both inclusive, on cut meadow hay and corn fodder, half each, and twenty pounds of carrots.*

	Delia.	Lady.	Spot.	Redneck.	Kendall.	Flora.	Total.
First day,	16¾	22½	21¾	24	24¼	22¾	–
Second day,	18	23½	22½	23½	25½	25¼	–
Third day,	15½	19½	20	19	21½	21¼	–
Fourth day,	17½	21¾	21¾	22½	23½	22½	–
Fifth day,	15½	20½	18¾	20	21½	21½	–
Sixth day,	15½	20	19	20¼	23½	23	–
Seventh day,	16	19½	19½	20½	23½	23½	–
Eighth day,	14¾	18¾	20	19¾	20	19½	–
Ninth day,	17½	19½	20¼	21½	23½	23¾	–
Tenth day,	14½	17¾	16¾	19½	19¼	19¾	–
Eleventh day,	14½	15½	18½	19½	20	21	–
Twelfth day,	18½	18¾	16½	19½	22	22	–
Thirteenth day,	18	18¾	17	21¼	22	22½	–
Fourteenth day,	16½	20¼	20	21½	21½	21¼	–
Fifteenth day,	17½	19	16½	22½	24½	23¾	–
Total hay and fodder consumed,	246½	295½	288¾	314¾	336	333½	1,814¾
Average daily consumption in pounds and hundredths,	16.43	19.70	19.25	20.98	22.40	22.21	-
Average morning and evening w't on first day of trial,	1,032	980	875	877	977	985	5,726
Average morning and evening w't on last day of trial,	982	961	847	862	980	970	5,602
Average weight for the 15 days,	1,007	970	861	870	979	978	–
Per cent. of hay consumed on live weight, daily,	1.63	2.00	2.24	2.41	2.29	2.27	–

The six cows in this trial consumed eighteen hundred and fourteen and three-fourths pounds of meadow hay and corn fodder, and eighteen hundred pounds of carrots, and lost in weight one hundred and twenty-four pounds, which, at four cents, comes to $4.96. The hay and corn fodder consumed in this and the last trial was so nearly the same, the comparison of the two comes directly between the value of carrots in this trial and the Indian meal in the last, and shows three hundred and sixty pounds of Indian meal to be worth $4.96 more than eighteen hundred pounds of carrots; or, if Indian meal is worth $46.54 the ton, carrots are worth $3.78 the ton, or a fraction over twelve pounds of carrots are equal to one pound of Indian meal.

Memorandum of feeding six Cows on the State Farm, Westborough, eight days, from May 6 to May 13, both inclusive, on cut English hay and twenty pounds of carrots, daily.

	Delia.	Lady.	Spot.	Redneck.	Kendall.	Flora.	Total.
First day,	20	19	21	19	22	22	–
Second day,	21	18	20	20	21	23	–
Third day,	19	18	19	18	20	20	–
Fourth day,	22	20	20	20	21	21	–
Fifth day,	21	21	20	21	21	22	–
Sixth day,	20	21	19	21	23	23	–
Seventh day,	22	22	20	20	22	21	–
Eighth day,	21	20	19	22	22	22	–
Total hay and fodder consumed,	166	159	158	161	172	154	970
Average daily consumption in pounds and hundredths,	20.75	19.87	19.75	20.12	21.50	19.25	–
Average morning and evening w't on first day of trial,	932	961	847	862	980	970	5,602
Average morning and evening w't on last day of trial,	1,029	987	874	876	990	989	5,745
Average weight for the 18 days,	1,005	974	861	869	975	919	–
Per cent. of hay consumed on live weight, daily,	2 62	2.04	2 29	2.32	2 21	2.94	–

It was the intention of the committee to continue this trial fifteen days, but the supply of carrots failing, they were compelled to close it at the end of eight days. The six cows consumed in eight days nine hundred and seventy pounds of hay and nine hundred and sixty pounds of carrots, and gained in weight one hundred and forty-three pounds, which, estimated at four cents the pound, comes to $5.72. The roots consumed daily, the same as in the last trial, the comparison comes between the meadow hay and corn fodder in the last, and the English hay in this trial—showing the nine hundred and seventy pounds of hay in this to be worth $5.72 more than the nine hundred and eighty-one pounds of hay and fodder consumed in eight days of the last trial, or meadow and corn fodder in the fifth trial, at $3.83 the ton; the value shown in the third trial equals English hay at $15.68 the ton, corresponding, nearly, with the result shown in the third trial, in which English hay was estimated at $15 the ton.

JOHN BROOKS.

The following is the Report of the committee on

IMPROVEMENTS:

The committee on permanent improvements, in pursuance of the duty assigned them, visited the farm at Westborough, in March last, and after a careful examination of the premises, and consultation with Mr. White, the farmer, in relation to the most urgent wants pertaining to improvements, farm arrangements, &c., concluded that the interests of the State, and the objects of the Board, rendered it expedient that certain improvements should be made; accordingly a plan embracing the various improvements contemplated by your committee, with instructions to the farmer for conducting the same, was submitted to the Board at their regular meeting in April last, and approved. Operations were immediately after commenced, and prosecuted during the past season at times and intervals when other work on the farm was less pressing, with the following results:—

Many hundred tons of stones and large boulders that had been previously dug, and blasted out, and which completely covered a large space of the surface in front of the farm house, have been hauled off, and such as were suitable, deposited near the piggery, to be used for a cellar wall under the same; the small stones were taken to the garden and used for filling underneath the walks, and a large quantity were deposited near the north shore of the pond, where if not wanted for other purposes, they can conveniently be used for building out a pier a short distance into the pond.

On the 1st of January, 1838, Mr. White reports, "that by the removal of the stones the lands in front of the farm house, although not entirely completed are still rendered beautiful when compared with their former condition. A fine field of winter-rye is now growing where one year ago nothing but rocks were visible. This has been accomplished at a cost, including the wages paid for labor of the boys, of $248.25.

The decayed and worthless fruit trees which stood on the grounds near the farm house, and north of the barn, have been dug up and hauled to the steam-mill for fuel. About half of the wood lot west of the institution has been trimmed and the underbrush removed. To render the work more complete, as far as it has progressed, many more of the small and stinted under-growth of trees should be taken out. When the whole lot shall have been properly finished, its appearance as a grove will not only be greatly improved, but it will afford excellent facilities for gathering many cords of leaves every autumn, which can be used for litter at the barn and piggery, and thus converted into manure.

The land about the old reservoir, comprising about one and a half acres, which till now has been literally a rocky waste, has this year been trenched over to the depth of one and a half feet, and every rock has been dug and blasted out or sunk below the reach of the plough or spade; and it is now a beautiful undulating side-hill fit for any crop or trees of any variety.

The road built by the meadow and below the grove was an important work, furnishing easy access to the new reservoir and to the lower part of the meadow which has been inaccessible by teams.

The amount of lands trenched on the "Warren lot," (so called,) this season, is two and a half acres. It has been thoroughly dug over to the depth of fifteen inches, and all the stones taken out or sunk below the reach of the plough. Three more acres still remain in an unfit state for cultivation, and will furnish a good place for one hundred boys part of another season, who cannot otherwise be so profitably employed. When this shall have been completed it will comprise about seventeen acres on the "Warren lot" of excellent land, ten of which will then have been changed from a rocky brush pasture, to a beautiful lawn. The cost of operations on this lot during the past season has been $870.10.

The apparent cost of reclaiming this lot, may seem to be greater than the worth of the land, after it is finished, would justify; under ordinary circumstances it would be quite true, but it should be considered that it is situated in the immediate proximity of the institution, that it was much needed for the purposes for which it is now fitted, and that a large proportion of the cost has been made up by the wages paid for labor of boys.

The whole amount charged to permanent improvements, for the past season, as appears by the report of Mr. White, is as follows, viz.:—

On lands front of farm-house,	$248 85
" by old reservoir,	392 75
road below the grove,	210 20
Warren lot,	870 10
miscellaneous jobs,	221 00
Cost of powder,	21 10
Repairing tools, chains, &c.,	36 00
Total cost,	$2,000 00

B. V. French.
Samuel Chandler.

At the same meeting of the Board a committee was appointed, to consider and report at the next meeting of the Board, some plan of operations at the Farm for the coming year. This committee was chosen by ballot, as follows: Messrs. Tower, of Lanesborough, Fisher, of Fitchburg, Grennell, of Greenfield, Felton, of Brookfield, and Newell, of West Newbury. This committee accordingly visited the Farm, and at the annual meeting of the Board, held at the State House on the 26th of January, 1858, presented a detailed report for the use of the Board. A committee was thereupon chosen, by ballot, to superintend the management of the Farm, as follows: Messrs. Brooks, Newell, Fisher, Tower, Field, Felton, Gardner and Bartlett.

It was voted, That the superintending committee shall have the whole charge of the Farm in all its details. At the first meeting of said committee, they shall organize by the choice of a clerk, mature their plans for the general management of the Farm during the season, and no new enterprise shall be commenced without the consent of a majority of the committee. The committee shall meet at the Farm not less than once a month, and the record of all their meetings shall be left in the hands of their chairman, who shall communicate all directions to the farmer, who shall look to no one else for directions as to crops, labor, stock and improvements.

The chairman shall be at the Farm as often as circumstances shall require, and shall spend some days there during the planting of the crops.

It was also voted, That the Board ask of the legislature an appropriation of four thousand dollars, for the purchase of additional stock at the Farm, for sundry necessary improvements, and for the labor of the boys during the year.

For the latter purpose two thousand dollars would, it was thought, be needed. It is necessary that the boys should be furnished with work, and it was the intention of the founder of the institution that they should be employed on the Farm. It cannot be supposed that so large a number can be worked to any profit, especially when it is considered that the crops raised must be such as the institution needs, and not merely such as would be raised to most advantage with boys' labor. The experience of four years has shown, that in point of fact the labor of the boys is a source of great expense to the Farm, instead of profit, inasmuch as it is absolutely necessary to hire an intelligent class of men, at high wages, to superintend them, and to keep them for a considerable portion of the year on permanent improvements which make no immediate pecuniary return. With the necessity of employing the labor of the boys, nearly twice as many men are required as would be needed to carry the Farm on without this necessity. The character of the men who compose the superintending committee of the Farm, every one of whom was chosen to the Board by the farmers themselves, to act for and to represent them, and the fact that they devote their time and their services to the public without the slightest compensation, and without personal emolument of any kind, should be regarded as a sufficient guarantee that they will manage the Farm as judiciously and as economically for the Commonwealth, as any body of men could be reasonably expected to do under the same circumstances.

It was voted not to hire any land at the Farm except for pasturage.

The subject of holding another State Fair coming up for consideration, it was voted to defer the final decision of the matter to the next meeting of the Board. It was also

Resolved, That the thanks of this Board be tendered to the Massachusetts Society for the Promotion of Agriculture, for the very cordial support it has ever rendered this Board, and especially for the generous appropriation of two thousand dollars made to the funds for sustaining the late State Agricultural Exhibition held in Boston.

Resolved, That the Secretary of the Board present a copy of the above vote to the Trustees of said Society.

At the same meeting a committee appointed at a previous one, to investigate the causes and remedy of the diseases of the potato, with reference, especially, to the applications made for the bounty offered by the Commonwealth, presented the following preliminary

REPORT:

The committee to whom was referred the investigations of the various methods of arresting the disease of the potato, proposed by sundry applicants for the bounty of the State, beg leave to report to the Board, that they have attended to their duty so far as to take the necessary steps for collecting the facts which must be made the foundation of every sound theory in science.

We have distributed very freely, in this and in other States, the accompanying circular,* and we have felt that the importance of the subject forbade us to form any hasty conclusions from the limited number of those which have yet been returned to us. It is very much to be desired that all those who have received a copy of this circular should fill its blanks, not with their theories, but with answers based only upon well-attested facts.

Your committee, having no particular hobby to ride in connection with this subject, ask leave of the Board to continue their researches after important facts, which, when properly sifted, classified and compared, may afford some more just and stable foundation for a theory than any which has yet been built upon.

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* The following is the Circular referred to:—

What is the character of the soil upon which your potatoes are planted?

What were the crops and the manure for one or two previous years?

Kind and quantity of manure applied to the present crop?

Character of the season as to heat and moisture?

Variety of potato planted, color and size, whole or cut?

Time and quantity of inflorescence and amount of balls matured?

Fungous or other unnatural growths upon stalk or leaf?

Will you be good enough to send specimens of any insects that commit ravages upon any part of the plant?

Upon harvesting the crop do you find the new tubers vegetating?

Date of the first appearance of rust upon the leaf?

If disease attacks the tuber, note its date, its form—whether dry or soft rot—and, as far as possible, describe its progress to its termination?

What variety shows the greatest liability to disease?

Is the disease general throughout the crop, or confined to single tubers, or certain locations, and if the latter, state the differences of soil?

Have your potatoes been propagated from the *seed*, and if so, how many years since?

Have you been in the habit of getting tubers for planting from other localities?

How far back can you remember the first appearance of disease, whether of the dry or soft form?

When did it first assume the epidemic form?

How much has the yield diminished, per acre, within the last twenty years upon soils of a similar character?

If there are any FACTS in your possession bearing upon the subject, either of a historical nature or otherwise, please note them.

The undersigned, having been appointed a committee by the Massachusetts Board of Agriculture, under the authority of a Resolve of the legislature, to investigate the various methods of arresting the disease of the potato, proposed in sundry applications, and otherwise, desire to call your attention to the foregoing Circular, and ask your assistance in collecting and furnishing us all the facts in your possession bearing on the subject.

If you will be good enough, after having filled the answers to the above series of questions, to direct this Circular to the Secretary of the Massachusetts Board of Agriculture, at Boston, with the endorsement "Potato Disease" upon the envelop, you will much oblige.

Yours, very truly,

JOHN C. BARTLETT,
JABEZ FISHER,
NATHAN DURFEE,
Committee.

The Board may rest assured that this investigation will not be suffered to slumber, and we would, in this public manner, invite any person in possession of a fact upon the subject, to communicate the same to us although he may not have received a copy of the circular, always premising that we seek no man's opinion but simply his facts.

All which is respectfully submitted, by

John C. Bartlett,
Jabez Fisher,
Nathan Durfee,
Committee.

Boston, Dec. 8, 1857.

The Secretary read the following letter from the Earl of Clarendon, acknowledging the receipt of the Reports of the Board:—

Foreign Office, Nov. 13, 1857.

Sir: I have had the honor to forward to his Royal Highness, the Prince Consort, your letter of the 29th July, with the accompanying volumes upon the Agriculture of the Commonwealth of Massachusetts, and His Royal Highness desires that I will convey to you and to the gentlemen composing the Massachusetts Board of Agriculture, His Royal Highness's warmest thanks for this very flattering and gratifying mark of attention on their part.

These volumes will form a very valuable addition to His Royal Highness's library, and he accepts them with the greatest pleasure.

I have the honor to be, Sir,
Your most ob't serv't,
Clarendon.

Charles L. Flint, Esq., &c., &c.

THE LIBRARY.

The Agricultural Library connected with the office of the Secretary of the Board, has now become the largest and most valuable collection of the kind in New England, and is probably the most extensive in the United States. A complete catalogue is to be found in the Appendix, and is now published for the use of those who are active in creating similar agricultural libraries in the various towns of the Commonwealth. The frequency with which applications are made to me to suggest such a list of books as would be most suited for such libraries, leads me to hope that it may be of essential service by way of suggestion, to all who are interested in the matter.

I acknowledge with pleasure, the receipt, for the use of the library, of files of the early numbers of the Boston Cultivator, the Massachusetts Ploughman, and the weekly New England Farmer, from Gen. William Sutton, of Salem; of valuable public documents from L. A. Huguet Latour, Esq., of Montreal, Canada; of Studies in the Field and Forest, from the author, Wilson Flagg, Esq., of Andover; of a copy of the Memorial of the Inauguration of the Statue of Franklin, from J. S. Damrell, Esq.; besides a large number of documents and reports from various sources, received by way of regular exchanges.

All donations to this library hereafter, will be formally acknowledged in the Report next succeeding, and the thanks of the Board tendered on behalf of the State.

THE MUSEUM.

By an Act of the legislature of 1857, the room originally designed for this purpose, in the recent enlargement of the State House, has been fitted up to receive the State Cabinet, and such other contributions as should be made, from time to time, illustrating the past and present condition of our agriculture, and the natural history of the State. The arrangements for receiving the Cabinet, were completed on the first of the current year, and the Museum now contains between three and four thousand specimens of various kinds, which, though only a beginning, is rapidly increasing by contributions made by myself and others. I take pleasure in acknowledging the receipt, on behalf of the Commonwealth, of a Chinese plough from Charles H. Lunt, Esq., of West Roxbury; of various relics from the ruins of the house built and occupied by Capt. Miles Standish, at Duxbury, from Mr. James Hall; of Indian spear heads found at Greenfield, from James S. Grennell, Esq., of that place; of beautiful specimens of feather grass from Mrs. Peck, of Roxbury; of a collection of grasses and mosses from Mr. William Richards, of Sharon; of specimens of coal from the coal formation at Attleborough, from Mr. Henry Rice, of North Attleborough; of a model of a patent self-feeding horse-stall, designed to economize food and labor in grooming, from Dr.

Henry Eddy, of North Bridgewater; of twenty-four species of birds from Mr. J. W. P. Jenks, of Middleborough; and of several varieties of Indian corn from different individuals. Mr. Jenks has kindly consented to present specimens of a large number of varieties of the birds of this State, and individuals in all sections are respectfully invited to aid in this collection, by forwarding any curious and rare specimens which they may chance to have, in order to make it what it should be, the largest and finest collection of Massachusetts birds now in existence. Capt. N. E. Atwood, of Provincetown, has undertaken to supply the Cabinet with specimens of all the varieties of salt water fishes in our waters, and this department will soon be creditable to the State. The coöperation of individuals in all parts of the Commonwealth, is respectfully solicited, and contributions of any kind, illustrating any part of the natural history of the State, will be thankfully received and acknowledged in subsequent reports.

The practical value and importance of this Agricultural Museum will become more and more apparent as the collection increases.

In conclusion, I take great pleasure in reporting the continued usefulness of the county agricultural societies. There never was a time when, as a whole, they were more active in promoting the true spirit of emulation. There never was a time when the spirit of inquiry and enterprise in agricultural improvement was more widely spread among the people of this State, or when it was having a more lasting effect upon the future prosperity of the community.

When I entered upon the duties of my office, five years ago, the aggregate amount of the permanent fund of the societies was $92,816.54. It has now increased to $156,791.73, while the total amount of all the property of the societies has risen in the same time from $109,911.10, to $178,175.50. The amount received from new members and donations in 1853, was $6,376.50. The amount received from the same sources last year, was $9,214.10. The total amount of receipts by the societies in 1853, was $30,251.82. The total amount of receipts by the societies in 1857, was $63,228.42, or more than double that of 1853. The amount of premiums and gratuities distributed in 1853, was $8,489.11. The amount paid out last year in premiums and gratuities, was $18,546.13, besides the large amount distributed by the State Fair.

Equally gratifying evidence of an increased interest is to be found in the multitudes which now throng the exhibitions of these societies, eager to see and to hear. They have become, indeed, the grand holidays, and the chief festivals of the farming and mechanical population of each county, promoting alike the social and intellectual progress of the young and old. It would be difficult to devise a substitute for these exhibitions which should be open to so few objections. They are meeting the wants of the mechanic as well as the farmer, by developing the material resources of the State, encouraging domestic industry, dignifying manual labor and leading to a higher and more genial social culture among us.

CHARLES L. FLINT,
Secretary of the Board of Agriculture.

BOSTON, January 28, 1858.

REPORTS OF COMMITTEES

APPOINTED TO VISIT THE

AGRICULTURAL EXHIBITIONS.

ESSEX.

The sickness of Dr. Bartlett, who was appointed by the State Board of Agriculture to visit and report upon the Essex County Cattle Show, in 1857, preventing him from performing the duty assigned him, for which he expresses regret, as it was a county show he was desirous of witnessing. And which I am free to say was a source of great disappointment to the officers of the society, who would gladly have introduced him to all departments of their show, with the assurance that his industry and devotion to such pursuits would have enabled him to suggest subjects for consideration that would have been practically beneficial to us. But circumstances beyond his control, compel us for this year, to forego the aid which his presence and counsel would impart, and has induced him to ask me to give a summary account of the society's show for this year, which I have consented to do with some reluctance, as my time was occupied almost exclusively in arranging and providing for the animals upon the ground for exhibition.

The fair was held at Newburyport, on the 30th of September and the first of October, and the attendance on both days larger than usual.

The City Hall was assigned for the display of fruit, flowers, domestic manufactures, and fancy articles, &c. And in a tent in the immediate vicinity, was exhibited the vegetables and carriages.

The cattle pens were arranged upon a field of Dr. Kelley's, adjoining High and Kent Street, where were on exhibition cattle, horses, sheep, swine, poultry, &c.

The ploughing field was upon the Pettingill farm, at the western end of Plumb Island turnpike, a lot uniform in quality, being sandy loam, and had been for some years in pasture.

There were in the pens, for exhibition and premium, more than one hundred and thirty head of cattle, embracing most of the different breeds, of all ages; there were a larger proportion of yearlings and calves than I have ever seen at this county fair.

Among others Mr. Aaron Dodge, of Beverly, has gone largely, for an Essex farmer, into the rearing of calves, having raised within the last year *eighty-six*, at a cost until weaned, as he states, of about $2.50 each; whether his farm is sufficiently extensive to bring this number annually to maturity I am not advised; or whether he has gone thus extensively into this portion of farming to try experiments or as a permanent business, he does not state. He does state that he purchased most of them from the milk farms at one dollar each; and that he has tried oil meal, corn meal, and flour mixed with milk. But I do not learn that he has instituted any comparison as to the value of the different food, or the quantity fed; a part of them were weaned at from three to four weeks old, on pasture feed. He says he has tried to raise them as cheap as he could; he has lost thirteen from various causes during the year. The coming winter will probably determine whether it is good economy to wean calves so young.

Dr. George B. Loring, of Salem, is perhaps the next largest rearer of stock in the county, having raised ten or fifteen annually for the last few years. He states that he takes them from the cow when young, feeds on milk, meal and water made into gruel, but does not state the quantity or proportion of each; he ceases to feed milk at from six to eight weeks old; he has crossed the Jersey with other stock.

Among the entries there were thirteen pair of working oxen, and they were fine specimens. There were good cows and heifers exhibited, but none noticed so much superior to the average quality as is sometimes reported.

Twenty-eight teams competed for the various premiums offered on ploughing, amounting in all to $140, and the quality of the work done was evidence enough that ploughing is no new feature at the Essex show. There were upon the ground all kinds of ploughs in modern use.

In the exhibition and trial of horses they were only exercised to test their qualities for the various uses they are designed for by practical and business men.

There were for exhibition or premium thirteen stallions, two of which had received the first premium of the society. One belonging to Lambert Maynard, and the other to Charles Boynton, therefore not competing this year.

There were nineteen brood mares with foals by their side, and the committee report that there were no unsound ones, and none unworthy of a premium, had they as many to bestow.

There were forty-three colts entered for premium, besides those entered with their dams.

There were fifty-seven dollars offered in premiums on butter, and it brought to the show thirty samples, so different in quality as to working and salting, that the committee had little difficulty in unanimously awarding all the premiums, being six.

Of cheese there were four specimens, and not of a very superior quality.

Considering the short crop of fruit this year there was a full supply on exhibition. More perhaps than on any former year. There were 921 baskets and dishes, from 204 contributors. A better display could not be expected in any county.

There was a large collection of vegetables of all the varieties grown in New England. This portion of the show is made up as it usually is from towns in the immediate vicinity of the exhibition. Seven-tenths of the lots exhibited were from Newburyport, Newbury, and West Newbury. The largest number of varieties exhibited by any one person was seventy, from the Derby farm, Salem.

The display of flowers and green-house plants added much to the brilliancy of the spacious hall, which was crowded with the above described articles, domestic manufactures, and all kinds of ornamental and useful handy-work.

The carriages and harnesses were of high finish and apparently durable and valuable articles. Those which obtained the first premiums were from the manufactory of Nichols & Thomas, West Newbury, and from Sargent, Gunnison & Co., Amesbury.

The hall was open two evenings and one day, and the receipts for admission, at ten cents each, amounted to $840.

The annual address was delivered by Dr. E. G. Kelly, of Newburyport; his motto "Home, and its embellishments," and happy will be those who heard his well-timed and able illustrations.

The public dinner was under a tent where more than six hundred were seated. And after partaking of a dinner suited to the occasion, the president, Richard S. Fay, Esq., rose and congratulated the society and its several committees, on their entire success in carrying out the objects of the association in all its departments, commenting with particular interest upon the abundance, variety, and fine quality of the vegetables; and he paid a flattering compliment to the city authorities and the citizens generally of Newburyport, for their generous aid in forwarding the enterprise. And then, in his very happy style, introduced to the audience His Excellency Governor Gardner, Hon. Josiah Quincy, Jr., and others, who addressed them for a brief period, when the party dispersed to their homes, made happier and better by these two days' interview.

MOSES NEWELL.

MIDDLESEX.

As a delegate from the State Board of Agriculture, I attended the agricultural show and fair of the parent society of the County of Middlesex, held in Concord on the 29th day of September, under the most favorable auspices. It was a warm and pleasant day.

At an early hour the competitors on ploughing, eight ox and eight horse teams, were upon the field ready to show their skill; liberal prizes were offered to the most worthy.

There was a spirited contest, sixteen men with good teams were striving to excel each other, in the presence of a large collection of people. As a whole the work was well done. The ploughs were of the most approved kinds. The furrow was from six to ten inches deep, having some double teams.

The ploughing is a part of the exhibition that is practical. It may be asked what is gained? I would answer—the ploughman shows his oxen or horses; their training, their ability to work. The holder of the plough shows his physical ability, and his skill in holding the plough, in the presence of the congregated farmers; shows the plough, the skill of the maker or inventor approved or condemned. The width or depth of the slice is discussed, opinions given, experience related, conclusions gained, and many go away profited.

I would here suggest, that before plots are laid out, the propriety of ploughing a few furrows at the ends, that the competitors on coming out need not make such ragged work, which mars the whole appearance of their ploughing. Straight furrows are a great recommendation in ploughing. That ploughman who is mechanic enough to turn a straight furrow is sure to do his work well.

A few moments walk on the outside of the village, is located the fair grounds, which are inclosed with a good fence. Within its limits is located a commodious exhibition hall; also a course for the exhibition of horses and cattle, which has been made the past year.

There were 200 head of cattle on exhibition. The Devon oxen and steers; some of them were very superior in size, in color, in activity, making profitable and beautiful oxen. There were some very large and superior Durham, crossed with native, showing points of great physical ability, and frames well calculated for the stall. A discerning farmer will have two objects in view in raising cattle; first, size and muscle for labor, for the stall, and we might add beauty in form; all these qualifications should be combined. The Ayrshire, Alderney and Jersey stock gave character to the show.

The number of cows and heifers was not large, nor many very superior ones; not as good as their importance deserves. The raising of stock is attracting more attention among our enterprising farmers every year.

What is there upon the farm that a farmer exhibits with more complacency than a good animal. Men of all professions admire the calf of promise, the noble steer, that is rising to maturity in beauty and strength; the majestic ox fully developed, exhibiting the perfection of his kind; or the young heifer with feminine beauty, and marks of promise even superior to her mother in cowhood.

And the cow, the mother cow, the noble representative of them all, can there be too much said in the way of improvement of this useful animal?

Has not the time come in which we may report progress? Surely it has. Our dairymen are waking up to this subject; they are calling for the best blood and crosses, to raise the perfect cow, and best milkers for butter and cheese. It is true that there are more or less good milkers in every community, but it is generally more accidental than otherwise.

The idea is not very prevalent among the great mass of farmers, that you may raise an animal very much to your own taste, by judicious crosses; that you may make this point more prominent, or that less, alter materially the shape of your stock; can raise large or small cattle, good milkers or poor ones. If this be true, and I believe it is reduced to a science among our best stock growers, it is an important fact.

The first year's growth of a calf is of great importance. Nothing pays better than to make pets of all of our calves the first twelve months. No one can afford to raise a poor calf. A good one pays well.

The show of horses was very respectable. More good horses than are usually seen at our fairs. Some very superior Black Hawks and Morgans were on exhibition, and other very superior single and matched horses; also mares and colts. The show was imposing as they passed around the course at common speed. I was forcibly impressed that this is the true way to show to advantage a horse; then you can see their true form, their motion, and muscles—the noble animal in his pride, without his form being distorted under the spur and lash. There was no fast trotting there. I saw no fancy horse men, whose greatest pride is sporting with fast horses. But I found myself among a civil people, lovers of good order and good horses, well knowing the proprieties of the farmers' festival, and the humanity that belongs to the lower animals.

The show of swine was not large but good, mostly of the Suffolk cross, which is the best cross extant.

There was some good specimens of poultry.

The spading match was well contested, and the work well done.

The trial of the strength and discipline of oxen was well contested; heavy loads were drawn, and backed with ease, showing that a proper training adds much to the value of an ox team.

The exhibition hall was *the* place of great attraction, and well it might be, for every department was most beautifully arrayed; more taste and system is seldom seen in exhibition halls. The show of apples and pears far exceeded any show I have ever had the pleasure of seeing; the varieties were very numerous. Mr. S. Tuttle, H. A. Wheeler, of Concord, James Eustis, and others, are worthy of the highest commendation for their rich specimens of apples. W. H. Allen, of North Cambridge, and John Gordon, of Brighton, exhibited fifteen varieties, each of the best varieties of pears, which was a rich display. The peaches were large. General Chandler, of Lexington, exhibited a dish of the golden-drop plum, the largest and best specimen I have ever seen.

Hon. E. W. Bull took the first premium on the Concord grape. Mr. Bull is the propagator of this grape, and it proves to be one of the very best grapes for our northern climate, as they mature in September. The specimens on exhibition were good size, purple color, and good flavor. Every man who has a garden spot, should have one or more of these vines. Mr. Bull is supplying all calls.

The display of vegetables was large, of all kinds, and the most perfect varieties. Much attention is given to sauce vegetables for market. Gov. Brown exhibited some sweet potatoes from his garden, which were well matured, which demonstrates the fact that they can be raised in this latitude.

A. H. Wheeler, of Concord, exhibited forty Jenny Lind potatoes which weighed 60 lbs.; also some Davis seedlings which were very perfect, and it is said they do not rot.

The ladies' department was well arranged, and the articles showed good taste in design, manufacture, and display.

There were twenty specimens of butter, and as many of bread, and New England over can't produce any better display of the staff of life and the indipensable article from the churn, than the ladies of Middlesex brought together. Such wives and daughters may well be called "useful ornaments," the pride of their husbands and fathers.

At one o'clock a procession was formed and proceeded to the Town Hall, where about three hundred partook of a good dinner worthy of the occasion. After feasting upon the good things which were abundant, Mr. President Keyes called the house to order, and introduced to the audience the Rev. Mr. Babbidge, of Pepperell, who delivered an address, full of interest, showing a knowledge in the science of agriculture.

The toast-master was then introduced, and by a sentiment called out His Excellency the Governor of the Commonwealth, who spoke some twenty minutes, interesting the audience touching the subject of agriculture.

Other men were called out who interested the audience. Among the rest Benjamin Dix, "relic of another age," who is ninety-one years old, retaining all his faculties in a remarkable manner—one of the originators of the society in 1798, and had attended every anniversary during the whole time. This is the oldest society in the State; it was chartered in 1802.

The dinner table is an interesting part of this annual gathering. The farmers, with their wives and daughters, set down together, enjoy an hour or two around the festive board is a privilege.

There is an influence for good in drawing men together; not only farmers, but mechanics, manufacturers, professional and commercial men, breaking down the walls of partition, and we are brought to feel that we are one great family, and there is one great interest in which all are dependent—the success of the farmer. When they prosper all prosper.

And finally it was the best managed exhibition and fair throughout I have ever attended. One day's duration. Every thing done in order, in season, and well done. No rows, no drunkenness, all civility. And now I have only to thank the officers of this society for their kind hospitality.

JUSTUS TOWER.

MIDDLESEX NORTH.

The undersigned attended the third annual exhibition of the Middlesex North Agricultural Society, at Lowell, on the 16th of September, as representative of the State Board of Agriculture, and was most cordially received and hospitably entertained by the officers and other gentlemen of the society.

The day was fine, and the exhibition of a character to do honor to the society and promote the interests of Agriculture.

The exhibition ground of the society, which was purchased last year at fifty dollars per acre, is situated on the line of the Boston and Lowell Railroad, about a mile from the city of

Lowell, and is inclosed by a high and substantial wooden fence. It has a pine grove at the north end, and an evenly-graded half-mile track for the exhibition of cattle and horses.

Portions of the ground were judiciously assigned for ploughing, cattle-pens, exhibition of swine, poultry, &c., and the trials and the examinations by committees, came off at the times specified in the programme, so that before one o'clock, the examinations had closed, and a procession had formed on the ground to proceed to the dinner table.

The ploughing match commenced at 9 o'clock, and was well contested. There were twelve competitors for the premiums, three single and nine double teams, which were, in general, well trained, and performed their work with very little use of the whip. The ground ploughed consisted of a light, sandy loam, and perfectly free from all obstructions.

Your delegate did not witness the trials of strength and training of working oxen and horses, which took place immediately after the ploughing, as the time had arrived for him to witness the exhibition at the hall, but he was credibly informed that they were highly successful and satisfactory to those immediately interested, and that they attracted the attention of a large crowd of spectators.

The pens were well filled with the various breeds of foreign and native stock, to the number of about one hundred and twenty-five, and there were many very fine specimens. Among the twenty-seven bulls exhibited, "Napoleon," a fine Alderney, stood pre-eminent, and attracted great attention. He was three years and three months old, was raised in Roxbury, and owned by Mr. W. Spencer. The cows were of good appearance, and a few had the reputation of being great milkers.

A pair of four years old steers, owned by G. Roby, of Dunstable, were large, well matched, and attracted much notice.

The swine exhibited were of rare excellence—the Suffolk and Mackay blood seemed to predominate ; a sow and thirteen pigs, owned by Mr. Joseph Richardson, of Dracut, were of the first class, as were also several specimens of swine owned by A. G. Sheldon, of Wilmington.

In the pine grove were exhibited a large number and great variety of domestic fowls, as turkeys, Bremen geese, ducks, hens of various breeds, and pigeons, all of fine appearance.

Some hens of the Spanish variety, were very large and beautiful. There were seen, also, in the grove, several tribes of smaller animals, as rabbits, Guinea pigs, and swarms of bees. The bees were lodged in a patent hive called the Common Sense Hive, combining a brood and a store hive. They were owned by a Virginian.

The exhibition of fruits, vegetables, bread, butter, needlework, &c., which took place at Central Hall, was of a character to be admired by the lovers of choice fruits, and by such as can duly appreciate symmetry and order in arrangement. The exhibition was by no means extensive, but the specimens were so fine and so judiciously arranged, as to give to the whole an appearance of great beauty.

The mechanic arts were not very fully represented, owing, probably, to the exhibition of the Mechanic Association, which was being held in the city at the same time; there were, however, some very superior specimens of mechanical skill. The bread, butter, and needle-work, were highly creditable to the skill, industry, and correct taste of the ladies of Middlesex North.

At half past one, the society, with a respectable number of ladies and its invited guests, among whom were His Excellency Gov. Gardner, Hon. N. P. Banks, Hon. C. L. Knapp, and other distinguished gentlemen, sat down to a sumptuous entertainment at French's Hall, and when the demands of the physical nature had been supplied, enjoyed an intellectual repast from E. F. Sherman, Esq., which, though not strictly an agricultural address, was, nevertheless, a matter of general interest. It was an essay on the kinds and qualities of human food.

Several sentiments were then announced by Mr. Wightman, toast-master for the occasion, which were promptly responded to, and the reading of the reports of the committees closed the exercises of the day.

Perfect order prevailed through the day, in every department of the exhibition, and no specimen of intemperance came under the observation of your delegate.

O. C. Felton.

MIDDLESEX SOUTH.

The undersigned was delegated, by the Massachusetts Board of Agriculture, to visit the annual show and exhibition of the Middlesex South Agricultural Society, in September last. In performance of the duty imposed by this appointment, I was present on the second day of the exhibition, the first day having been very rainy and uncomfortable.

The society appeared to be active, energetic and ambitious. The officers are interested in their duties, and efficient and capable. The grounds of the society are not sufficiently extensive to enable them to concentrate all the parts of their exhibition upon a single point. There is not room there for the ploughing match, and for some other of the operations of the annual exhibitions. The hall of the society is well arranged and adapted for its purposes, though not yet completed.

The show of cattle and swine was excellent. The exhibition of horses was not extensive. The display of fruits was very fine, especially of apples. The character and variety of vegetables shown was superior.

The popular interest in the festival appeared to be general and deep. Large numbers of persons visited the grounds, and attended the annual dinner. An eloquent and suggestive address, on the finer aspects of agricultural life and its literature, was delivered by Rev. T. Starr King, and brief speeches were made by other gentlemen.

On the whole the anniversary was successful and profitable, and this society is entitled to be considered among the useful associations connected with the great interest of agriculture.

GEO. MARSTON.

WORCESTER WEST.

The annual exhibition of the Worcester West Society, took place at Barre, September 17th; and I considered it a favor to be delegated to that section of the Commonwealth, as I long have had a desire to extend my acquaintance to a locality so noted for their fine cattle, and superior dairy products.

I suppose that the main object of the Board in appointing delegates to the agricultural exhibitions, is to learn what is the condition of the art, what improvements have been made, and what improvements are most required.

It is obvious that such investigations can at present only be an approach to some definite result; but it is in the highest degree encouraging that some facts have already been brought out in respect to the increase of crops, and the vast economy of labor-saving machines that are of great value.

The day selected was unfavorable as far as the weather was concerned; but I was told that the number of persons in attendance was nearly equal to an average of previous exhibitions.

At their ploughing match the furrows were turned to a good depth, the work unusually well done, showing a great degree of skill, good ploughs, and well-trained teams.

In the cattle department, the most prominent animal was a thorough-bred Durham bull, whose symmetrical proportions made him an object of universal admiration; he was owned by William Robinson, Jr., of Barre. There were several other fine bulls on exhibition, most of them of the Durham grade.

There was a large number of cows on exhibition, and of a superior quality. They were most of them of the Durham cross, showing convincing proof that although the high-bred Durhams may be, as is generally supposed, poor milkers, a cross with this breed has given us some of the most valuable animals for the dairy.

There was a large show of working cattle, and young stock, many of them worthy of especial notice.

The swine and sheep were not largely represented, but showed some excellent specimens of the former; I believe, without an exception, of the Suffolk breed.

Among the horses, although the rain kept a great number of them in the barn, we found some fine animals, one of them, a beautiful gelding, owned by Joseph Wilson, Esq., of Petersham, in which speed, endurance, and perfect form, were wonderfully combined.

The usual in-door exhibition, consisting of manufactured articles, fruits, vegetables, &c., made an excellent display and were much admired; but I only found time to notice the most prominent feature of this department, namely, the products of the dairy. There was a large quantity of butter and cheese of a quality well calculated to sustain the high reputation that has for a long time been awarded to this portion of the county.

At an appointed hour a procession was formed, which proceeded to the Town Hall, to partake of the usual annual dinner, after which a highly instructive address was delivered by Prof. Nash, of New York, editor of the "Plough, Loom and Anvil."

As the address and dinner necessarily occupied nearly one half of the day, my time was so limited that there was undoubtedly much of interest that I was unable to give more than a casual glance at, if it did not entirely escape my observation.

I would respectfully notice one or two matters in which improvements are required.

The society needs more than one day for its exhibition, and the address should be free to all without incurring the necessity of attending a dinner.

I am much indebted to John G. Mudge, Esq., of Petersham, for his kind attention, and for enabling me to visit every department of the show with as little inconvenience as an incessant rain would permit.

THOMAS J. FIELD.

WORCESTER NORTH.

Agreeably to appointment of the State Board of Agriculture, the undersigned attended the annual exhibition of this society at the town of Fitchburg, on the second day of October, being its fifth anniversary.

The interest taken in the cause of agriculture, in Worcester County, was fully displayed in this section; a large number of persons attended the show.

The Common and Main Street, as well as the hotel yard, being used by the society to display the working oxen, horses and farm stock.

The upper story of the town hall was occupied with fruits, fancy articles, vegetables, &c., &c. The dinner table was spread in the hall below. After which, an eloquent address was delivered at the table by Mr. Tower, of Lanesborough, member of this Board.

Over five hundred and fifty animals were entered on exhibition, among which honorable mention may be made of two strings of town teams of working oxen, comprising thirty-eight pairs of remarkable cattle; those from Leominster were the best, as a whole, I have ever seen.

Of steers and steer calves, eighty-four were offered, and many promising specimens might be seen, which fact indicates a departure from the shameful custom which too many of our farmers have adopted of late years, in disposing of all their calves to the butcher, and depending on Brighton to make up their stocks of cattle.

If our farmers want good oxen they must raise and break to work more of their best calves, which latter can be, readily, by the boys, or worked in with their older cattle.

One pair of steer calves only six months old were shown, already yoked up, kindly endeavoring to catch the word of command from the proud lad who had them in training.

Sixty-six heifers and calves, also twenty-eight bulls and bull calves, were among the entries.

Some thirty cows in milk, many of which were good, a few rather ordinary in appearance, but said to possess good qualities.

Some fat cattle were exhibited, about twenty head; but, on the whole, wanting a little more meal to come up to first quality.

In the pens and wagons were about eighty hogs and pigs, some of which were handsome and thrifty, but the breeding sows generally were quite too fat to be of much value as such.

Many of our prominent farmers have got to learn that *fat* is a bad mark on a breeding sow, boar, milch cow, or fast horse, and the several committees appointed at our county shows, ought to condemn the practice of over-feeding with grain young animals intended to be used as breeders.

The working oxen performed well, were not over-loaded, and not too much whipped as usual at such trials.

Nearly fifty sheep were in the pens, the number being too small; without sheep much of our land is of little or no value, still our flocks annually decrease. Will not our farmers try sheep once more, (without getting up a Merino fever,) and suitably fence their lands and look out for their dogs. No animals pay better for the capital invested, than small flocks of well-selected sheep.

Of horses, mares and colts, eighty-five appeared; the mares were of the right kind generally. There was no fast driving or racing on the grounds, however some of the animals seemed willing to move at a fast gait if so ordered.

Excellent specimens of apples, pears, peaches, grapes, &c., were shown in the hall, also a good assortment of squashes, vegetables, &c., &c., which indicates an interest in the orchard and garden, lost sight of by too many. A good vegetable garden well attended, helps the housewife to many a dinner, and fills up the pork tubs more readily and cheaply than any other way.

A pair of mules were shown, exhibiting wonderful powers of strength. These animals are readily raised, live a long time, often thirty to forty years; are easily kept, and would be a valuable addition to many of our large farmers, as well as fill the city and town teams where stock-raising is not desirable.

This society would find it much to its interest to purchase a lot of land, adorn it with shade trees, and erect a substantial building in which to hold its exhibitions, where the farmers, mechanics and merchants, with their wives and daughters, may meet and enjoy the annual holiday.

The annual increase of value of such a lot and building, would, in the end, give a fair return to the society, as well as give this flourishing town a parade ground and hall suitable for public gatherings.

The ploughing-match I did not witness, but learned that it was well contested, and the work satisfactorily performed—about twenty teams being engaged.

On the whole the show passed off admirably. The officers of the society were all attention to the contributors and invited guests.

The example of this young society would be worthy of imitation by some older county societies, where the horticultural and horse shows far exceed the display of farm stock.

W. G. Lewis.

WORCESTER SOUTH.

The third annual exhibition of the Worcester South Agricultural Society, was held at Sturbridge, on the 30th day of September. The undersigned, a delegate from the State Board of Agriculture, in making this report, takes pleasure in stating that this branch of the Worcester County Society is in a most flourishing condition. The exhibition of this year fell upon one of the finest autumnal days of the season. The attendance was large and the exhibition exceeded the most sanguine expectations. It was gratifying to witness the farmers and mechanics, with their wives and daughters, standing foremost as exhibitors and competitors at the fair, giving assurance that they recognized it as peculiarly *their own* in its beginning and consequence. The ploughing match was held at 9 o'clock A. M. on the day of the fair, and although there were but six competitors for ploughing, there was a fine display of skill in this important department of farm labor and seemed to be witnessed by a large assemblage of the hardy yeomanry of that section of the State.

Then came the drawing match, which was engaged in with much spirit by competitors to the admiration of all observers. It was interesting to see the skilful teamster and the well trained oxen perform in this department of the show.

The exhibition of horses, although not large, was respectable in numbers, and character, without absorbing the whole interest of the occasion.

The show of stock in the different classes was not large, but in many respects of a superior quality; twenty-six bulls, eighty-one cows, and heifers, with forty yokes of oxen entered for exhibition and premium. Of swine, sheep and poultry, there was a fair exhibition, but not of a superior grade. Although there were no thorough-bred animals upon exhibition, except the herd of twelve animals entered by Simeon F. Marsh, of Sturbridge, all of the Devon breed, and the full blood short-horn bull, owned by S. R. Burroughs, of Warren, yet the grade stock on exhibition would do honor to the show of any society. There was a bull belonging to William Adams, of West Brookfield, and one to E. T. Brooks, of Sturbridge, of the Durham grade. And of this class of stock there would seem to be no necessity of looking farther to satisfy any fancier of this kind of animals; but our attention was called to two animals belonging to Daniel Dwight, Jr., of Dudley, one bull, two years old, weighing 1,533 pounds; also, one bull calf, seven months old, weighing 742 pounds, of the Devon grade, without the usual objection to that kind of stock. The cows and heifers on exhibition were many of them such as would be called fancy stock. The number of fat cattle was not large, yet the cattle were large; indeed, besides one pair of oxen four years old, belonging to William Harwood, of Charlton, which weighed 3,964 pounds, there were other fine specimens of fat cattle but not of a very superior class. The show of dairy products, bread, fruits, vegetables, domestic and mechanical productions, which was held at the town hall, was very creditable and elicited much praise from the crowd of visitors. There were some very fine paintings, as well as other miscellaneous and fancy articles exhibited, which showed there was skill, taste, and mechanic art within their borders. The thirty specimens of bread and twenty-one specimens of butter and cheese were sufficient to satisfy the greatest epicure.

Messrs. Bond and Damon, of North Brookfield, exhibited 134 varieties of apples and pears. Amasa Walker, of North Brookfield, 89 varieties of pears and apples, with contributions, from L. Hammond, J. M. Belknap, E. Twichell, and others, giving the hall the appearance of a fruitful season, notwithstanding the common saying to the contrary. The amount of manufactured articles was large and mostly of a permanent character.

The annual address was given by the Rev. Mr. Preston, of a neighboring village, upon the dignity of labor. No comments need be made upon the address but to recommend its publication for the the benefit of the laboring man.

After the services in the church a procession was formed and escorted by the marshals of the day to the public house, where at 3 o'clock P. M., the outward man seemed ready to feast, as there was an abundance of the good things before him to enable him to do so. After the dinner a few reports of committees were made and an adjournment to the church for the remaining reports; and this closing part of the festival your delegate was obliged to deny himself the pleasure of hearing for the want of time. The exhibition as a whole was decidedly successful. And in justice to the officers of this society the undersigned would express his gratitude for the friendly and respectful manner he was received and aided in his interesting duties.

JOSIAH WHITE.

WORCESTER.

In obedience to the duty allotted to me by the Board of Agriculture, I attended the thirty-ninth annual exhibition of the Worcester Agricultural Society, as delegate from the Board. The exhibition was held on Wednesday and Thursday, the 23d and 24th of September, upon the grounds of the society, in the westerly part of the city of Worcester. A heavy rain had fallen during the night and morning previous to the show, which accounted, in part, for the absence of the multitude which I expected to meet upon the grounds. Notwithstanding the acknowledged zeal of the president and officers of the society, in the cause of agriculture, I confess that the first thought upon approaching the exhibition was one of disappointment. Owing to the number of agricultural societies among which the county of Worcester is divided, but more on account of the almost entire diversion of agricultural products and implements, domestic articles, and fruits and vegetables, to the Horticultural Exhibition, and the Mechanics' Fair, the exhibition of the Worcester Agricultural Society is left almost entirely to the claims of horses and stock. But in these departments, but more especially the latter, I have reason to believe, the show was unrivalled by any county society in this State. The removal of the exhibition from the more central portion of the city, and the organization of the other societies, which hold their exhibitions near the thronged thoroughfares of the city, are certainly unfortunate for the agricultural society, and I think, will be found of no ultimate benefit to the other organizations. The charm of much of our county exhibitions is, that they contain something which attracts all tastes; and one of their greatest means of usefulness is, that by their rarity, he who is called to the exhibition by his interest in one department, becomes attracted and instructed by the display of another. More interest in matters pertaining to agriculture, has been created by the agricultural societies than in any other way. But that interest is excited in the minds of those who come with no well-defined object, perhaps for the mere love of seeing the multitude. Divide these societies into so many departments, each with a separate exhibition, and you at once devote each of them to the pleasure and profit of those only who are already interested in that department, and are connoiseurs or experts in that division of labor which it encourages. Unless our exhibitions have this variety of display, they are lost to the people, as an instrument of culture. Few men, in our State, can devote themselves to a single department of agriculture. We must become not only the farmer, the stock-raiser, the ploughman and the teamster, but we must attract the farmer's boy, the man-servant and the maid-servant, and stranger that is within our gates. All have much to learn, and each has something to impart.

The Worcester exhibition was remarkable for the quantity as well as the quality of the stock. The whole number of entries was four hundred and fifty, and exceeded those of the year previous, when the exhibition was held in connection with the show of the State society.

Of the stock, much attention seemed to have been paid by the exhibitors as well as the public, to the display of bulls, in which the towns of Barre and Princeton, seem to take a high rank. Mr. William Robinson, Jr.'s bull, of Barre, of the Durham breed, which was on exhibition at the State Fair, was well worthy of the first prize for bulls over three years of age, which it obtained; and Mr. Samuel Ellsworth, of the same town, presented the best full-blooded yearling Durham bull, which was regarded as one of the finest specimens of that blood owned in the State. Mr. John Brooks, Jr., of Princeton, exhibited a great variety of stock which is now well known to all who are interested in agriculture in the State. Ayrshire, Alderney, and grade stock were found in abundance. Governor Lincoln exhibited an Alderney, a Durham, and an Ayrshire cow, and plainly expressed his preference for the Durham breed for milkers, in our climate. Mr. Brooks is inclined to favor the Ayrshire; whilst Mr. Salisbury and others who exhibit the Alderney, candidly express their doubts concerning them as a source of profit in Massachusetts. We were glad to notice that some of the best stock was raised as well as owned in the city of Worcester.

A spirited competition in the driving and drawing of working oxen closed the exhibitions in the field for the first day. But I was shocked with the constant outcry, and use of the whip by some of the teamsters, which we cannot too much discourage. An excellent dinner in the hall of the society closed the festivities of the day.

The second day was given up to an exhibition of horses, under the patronage of a committee of gentlemen, who offered the premiums, and not under the strict control of the society.

In the evening, Mr. John Brooks, the president of the society, entertained the farmers of Worcester County at the Lincoln House.

I cannot close this report without rendering my acknowledgments to the officers of the Horticultural Society, as well as to Mr. Brooks, for their kindness in affording every facility for seeing what was worthy at their several exhibitions. The display at the Horticultural Fair, especially in apples and pears, was remarkable. Some fine specimens of the Rebecca grape, sufficiently attested their superiority in flavor to any grape of open culture, which has yet been raised in New England.

CHARLES G. DAVIS.

HAMPSHIRE, FRANKLIN AND HAMPDEN.

Theannual exhibition of the Hampshire, Franklin and Hampden Agricultural Society, was held at Northampton on the sixth and seventh days of October. This was its thirty-ninth anniversary, and, though three societies have been incorporated within its bounds since its organization, it is in a prosperous condition.

Order and decorum prevailed throughout the entire exhibition.

The farmers with their families were there in goodly numbers.

The exhibition of stock occupied the first day. About four hundred head of cattle were entered, comprising some fifty fat oxen and for the stall, which may well be the pride of Connecticut River Valley farmers. We do not remember ever to have seen in the aggregate a better show of oxen. There were three town string, sixty-five pairs in all, mostly very choice working oxen.

Of young and miscellaneous stock there was a good show. Several good Durham bulls were on the ground.

The society offer no premiums for distinct races or breeds, which may account for the fact that there was not much pure blood stock to attract attention, except the herd exhibited by Wells Lathrop, of South Hadley, with the following statement:

"I offer for exhibition and premium my Yarico tribe of thorough-bred short-horns. They consist of the original cow, Yarico, now fourteen years old, six of her heifers which she produced in succession without a bull intervening, and nine animals, the produce of these heifers. They number in all sixteen animals, viz.: fourteen cows, heifers and heifer calves, and two bull calves. The two latter, with five of the heifers and heifer calves, were sired by Kirkleavington, 1st, 610 (11640), and I believe they do him full justice. The old cow descended from the very superior milking family of short-horns, which were imported and bred by the late Stephen Williams, of Northborough, Mass., and both she and six of her family, which now are or have been in milk, prove to be excellent milkers. I have never disposed of a female of this tribe."

A cow, grade Durham, eight years old, weighing 1,500 lbs., owned by Erastus Cowles, of Hatfield, it was stated gave 52 lbs. of milk per day, from which was made in one week in May, 21 lbs. 2 oz. of butter, and 12 lbs. in September.

The exhibition of sheep was not large, and it is said that if the statistics of dogs were taken, they would show numerically quite too large for the well-being of this docile and useful animal.

Of swine there were few.

We regret to say that the ploughing match was omitted in the programme.

The exhibition and trial of horses was on the second day. About a hundred horses and colts were on the ground, many of them good; but as a whole, the show of horses would not compare favorably with that of the cattle.

The hall was well filled with the product of the dairy, bread, vegetables, fruits, flowers; specimens of mechanical skill, and fancy and useful articles by the ladies.

The address by the Hon. A. H. Bullock, was of a high order, and full of instruction. But we must be allowed to say that while there was a very respectable audience of farmers with their families, we looked around the church in vain, and at the dinner table, for the men of other professions and pursuits, with their wives and daughters.

To show the depreciation in the potato crop, the president, who had recently examined the early records of the society, stated that there were reports of between five and six hundred, and between six and seven hundred bushels raised upon an acre.

L. SWEETSER.

HAMPSHIRE.

The Hampshire Agricultural Society held its eighth annual fair at Amherst, on the 15th and 16th days of October, and it was admitted by all present to have been its best.

The first day was devoted to the exhibition of stock. Nearly four hundred cattle were on the ground. Of fat oxen the number was quite too small, and we are sure the farmers did not do themselves justice in this department. There were three town teams, one from Amherst, of 56 yokes; Hadley, 48; South Hadley, 24; every pair of the latter were good, many superior, the whole averaging 3,300 pounds a pair.

It was gratifying to witness the interest the farmers manifested in bringing out their young stock, steers, heifers, and calves; in this respect the show was far in advance of former ones, and indicates increased interest and improvement since the society was established.

Of sheep there were only four entries.

There were fifteen entries of swine, mostly improved breeds, and of excellent quality.

In no former year has there been so extensive or attractive an exhibition at the hall. There were some 800 plates of fruit; of apples we have seldom seen a finer display. Some very choice grapes, raised under glass, by Mr. Sage, of Ware, and several varieties of pease were worthy of notice.

The one hundred entries of vegetables were all that could be desired in quantity and quality.

Bread, butter, cheese, and honey were there in great profusion, and of the choicest quality.

There were over two hundred entries under the head of fine arts and fancy articles, and quite too few of real utility.

There were nineteen competitors for premiums on ploughing, single and double teams, with Michigan double, and various other ploughs. In nearly every instance the ploughing was done by men owning the teams, who showed great skill and experience.

The horse show occupied the forenoon of the second day. The society own no grounds, but streets and common afford ample room for such trials as the society desires. There has been a marked improvement in this part of the exhibition within a few years.

The address was delivered by Hon. A. H. Bullock, of Worcester, to a very large and deeply interested audience. Subject, "Division of labor; the model State." While he allowed that great improvement had been made in the agriculture of the State, he did not think it had kept pace with manufactures and the mechanic arts.

Dinner and speeches closed the occasion.

The weather was fine, and the village was crowded with people during the two days of the exhibition. The professor left his chair, the student his books, and men of all occupations, with a pleasing proportion of ladies, joined with the farmers in the celebration.

L. Sweetser.

HAMPDEN EAST AGRICULTURAL SOCIETY.

In accordance with the appointment of the Board of Agriculture, I attended the exhibition of the Hampden East Agricultural Society, which was held in the town of Palmer, on Tuesday and Wednesday, Oct. 6th and 7th.

After arriving upon the ground, during the forenoon of Tuesday, I made diligent search for some one of the officers of the society, but no one knowing of their whereabouts, and being unable to find any published programme of operations, or learn from inquiry what was the order of arrangements, I was necessarily left to proceed on a voyage of discovery.

Upon visiting the stock pens, I found a good looking collection of neat stock and swine, and a very good display of sheep. I had no difficulty in making my way about, for although there was a very fair collection of people in attendance, yet the vicinity of the pens was generally deserted. The explanation of this want of interest on the part of visitors, I afterwards found to consist in the superior attractions presented by certain collections of serpents, wild men, peddlers, &c., all vieing with each other in enticing the crowd of spectators away from the legitimate exhibition which had drawn them together.

The ploughing match I had no opportunity of witnessing. By accident I learned of the trial of working oxen, and was present. Although, as animals for purposes of draft, their performance was creditable, yet when they came to back a load weighing about 4,200 lbs., up a slight ascent, a sad want of training was manifest. Instead of the driver quietly giving them the word, which is sufficient with properly trained oxen, the whip was generally applied without stint before the animals were prepared to answer the demand upon them, and in some cases even before the word was heard. What can a pair of oxen be expected to do, if, at every second step, they are obliged to dodge a stroke of the lash applied about the head and face? Such management is entirely inconsistent with a strong, persistent effort, such as is required in the operation of backing a load, and the result of its indulgence upon the driver, is to develop the more unpleasant phase of his temper, and assist him in forgetting the third commandment. The ox is naturally somewhat slow in bringing his strength fully to bear upon any obstacle, but at the same time he is usually quite willing to exert himself to the utmost in attaining any object required of him. What is wanting, is a mutual understanding between the teamster and the team. Let the teamster appreciate the ability and capacity of his team, and the oxen on their part comprehend the wants of the teamster, then, with the application of a moiety of that kindness to the bovine race which exerts so important an influence upon the human character, the consequence cannot be otherwise than gratifying to all concerned.

In the vestry of the neighboring church were displayed the various productions of the farm, garden, orchard, dairy, &c. The collection of vegetables, though not extensive, was yet of a very superior character. Unusually large and well grown specimens of pumpkins, squashes, carrots, parsnips, cabbages, beets, &c., presented a very fine appearance, and are seldom excelled. Various grains and other seed products were very creditable. In the matter of fruits, appearances indicated that there is much room for progress. Although there were a few contributions that would have been excellent any where, yet, as a general thing, the fruits were not well grown, and in a number of instances, common varieties were misnamed. This will no doubt be corrected as further knowledge and experience are acquired. A nursery firm from North Brookfield, made a display of upwards of fifty varieties of the pear, many of which, however, would not tend to increase the enthusiasm of cultivators of that princely fruit.

The products of the dairy and kitchen were well represented, and wore an inviting appearance. There was rather a meagre display of fancy work, and of manufactured productions I saw hardly any thing.

On Wednesday the outside attraction was the exhibition of carriage horses, in which class there were some fine animals presented. At about one o'clock, a very good audience were assembled in the church, for the purpose of listening to an address from W. C. Goldthwaite, Esq., of Longmeadow. The address, as a whole, was a very well written production, containing many practical suggestions, but marred by occasional allusions entirely out of taste on such an occasion. At the close of the address, the secretary read the awards of the several committees, during which I was obliged to leave and forego the pleasure of being present at the dinner, which was to take place immediately.

The weather during both days was delightful, though cool enough to make an overcoat a convenient article of dress.

JABEZ FISHER.

FRANKLIN.

In accordance with the appointment of the Board of Agriculture, I attended the cattle show and fair of the Franklin County Society, on the 23d and 24th days of September last. The weather the day previous and the morning of the first day of the gathering was such, that in the opinion of those competent to judge, about one-third of the animals and other articles designed for the fair did not come upon the grounds. Late in the morning the village of Greenfield was enlivened by the entrance from the various avenues of men with their families, their herds of animals, and various other articles designed to grace the show grounds and the hall.

The several committees designated by appropriate badges, a feature not general in all county shows, but one worthy of general imitation, proceeded to the duties assigned them at a later hour than usual, on account of the delay occasioned by the inclemency of the weather, which crowded the whole examination of the stock, other than horses, into a very narrow space of time.

The examination of stock took place about one mile from the village, upon the trotting park, on Petty's Plain. And the exhibition of fruit, vegetables, bread, butter, cheese, maple sugar, and other articles for use and ornament were tastefully arranged under a committee composed partly of ladies, at Washington Hall, in the village.

After an introduction to the president, Mr. Fogg, and other gentlemen, by my friends Mr. Field and the secretary, Mr. Grennell, we proceeded to the park, where the animals were on exhibition. After passing around hastily among the swine, sheep, poultry, young cattle of various grades, working oxen, and steers three years old and younger; two town teams from Shelburne and Deerfield, the only ones noticed by me, though it was said, by some misunderstanding, the Greenfield town team was not seasonably collected and brought upon the ground, my attention was called to a pair of oxen of Mr. Parmenter, of Greenfield; if those were a fair sample of the oxen in Greenfield, as to size and quality, it would be hard for even Shelburne to beat them.

At two o'clock, we proceeded to the grounds assigned for the ploughing match. And here I must say, for the first time since I commenced an examination, I was disappointed. After viewing such noble oxen and steers three and four years old, large enough for a single pair, to break up any common sward land, only two double teams of oxen and three pair of horses contended for the premiums.

If the only object of a ploughing match is to show hurried work, perhaps as many were there as could be profitably employed; but if the true object of a contest in ploughing is carried out,—such as an exhibition of the most perfect skill in workmanship, by running straight and even furrows of the required depth, a proper training of the team employed, together with the opportunity offered for a display of all the various models of ploughs now in the market, which the farmers of the county can avail themselves of at an exhibition like this more readily than in any other way, by comparison not only of the appearance and workmanship of the plough, but also of its actual working in the soil, a selection of an article adapted to their particular farms can be judiciously made. The teams upon the ground were first rate and the work well done.

After the ploughing was completed I went back to the park with a view of making a more particular examination of the stock, by comparing the merits of seven families which had been reared from Durhams and other imported stock and grades, but upon arriving upon the ground the cattle had all been removed, as by a rule of the society the several owners of stock are allowed to take them from the grounds the first day of the show at two o'clock. I think this arrangement is a great mistake.

In a county where so much fine stock is reared, undoubtedly there must be a preference among the descendents of the several grades. One benefit of bringing the different herds together should be to afford an opportunity to institute those comparisons which cannot be done in the space of one short forenoon, as most of the time of the competitors is taken up in showing the stock to the several committees.

I know of no way the farmers of any stock growing county could spend a day more profitably than by examining with care the particular properties of all the animals upon the ground; and besides it might be made a fair for exchange and sale as the ordinary wants of the farming community demand at this season of the year. To accomplish this most desirable end, the society ought to own inclosed land, with pens and sheds. Hay and straw might be furnished by the society at a very small cost; thus the cattle might be kept over night, and great opportunities would be afforded to examine, compare, exchange, buy and sell cattle.

I have made the foregoing suggestions for the consideration of the Franklin County Society, and trust that if they are entitled to any consideration they will receive due attention.

If it were desirable, of which I have some doubts, to go into a particular description of how the premiums were awarded, and the merits of particular animals, the close examination required to give any description which could be reliable, was altogether beyond my reach, owing to the little time allotted to this part of the show. Suffice it to say, that the stock as a whole was of a superior quality. Three year old steers weighing from 3,000 to 3,800 lbs., and four years old and other oxen equally beyond the ordinary weight, well matched and showing great skill in breeding. I should judge from the appearance of many of the steers, that they might be the progeny of a bull of Mr. Anderson, of Shelburne, known as the Northumberland, and if I have rightly traced his pedigree, is second from a bull imported by Mr. Prentice, of Albany, and is considered a pure Durham. There was also a young Durham bull from Mr. Lothrop's stock, of South Hadley. Also an older one said to be Durham, known as Champion ; there were also Jersey and grade bulls partaking more or less of the five distinct varieties of a comparatively late importation of cattle. There was a herd of Jersey cattle imported by George Bird, Esq., of New York city, consisting of cows, bulls, and heifers, from Mr. Stoughton, of Gill ; also another herd from the farm of Gov. Cushman, of Bernardston, representing seven generations, and showing no deterioration as they have come along down ; they are grades having incorporated in them the blood of the Durham and Devon with what are sometimes called native, a term which one Essex man has defined as meaning stock which you can't prove to be any thing else.

I did not notice among the several flocks of sheep on exhibition, more than one animal that I considered a full blood, and that was a ram of the South Down variety ; there might have been others. There were in the pens some fine grade sheep.

The articles in the hall did credit to the farmers, the farmers' wives and daughters of Franklin County, and their success on this occasion is sufficient to encourage them to persevere and keep up the interest already awakened.

The second day of the show was more particularly directed to the exhibition of that noble and useful animal the horse. A large number of stallions, breeding mares and colts, of various ages were shown, which shows that the county are turning their attention to this portion of farm stock. From all the examination I was enabled to make, there did not seem to be that system in breeding which was so marked in the rearing of cattle. In the rearing of the cattle there seemed to be a standard, perfect form, large size, and disposition to fatten. The colts seemed to come up rather accidental ; they had no stallions or mares ; although they might be considered good, they were not particularly prominent. There were colts among the collection that will make valuable horses, that will command high prices.

The committee on horses examined those broken to the harness, at various rates of speed to test their qualities, but nothing was witnessed that would disturb the sensibility of the most fastidious on the question of fast driving.

Before twelve o'clock a procession was formed and proceeded to the Brick Church, to hear the address of Mr. Quincy. And the mention of the orator's name is guarantee enough that we had an instructive and interesting production.

After the exercise in the church the procession repaired to Franklin Hall, where a bountiful and sumptuous dinner was provided and partaken of by the invited guests, the citizens of Franklin County, their wives and daughters. At a suitable time the president of the society called the assembly to order, and in appropriate form congratulated the society upon the eminent success of the show, notwithstanding the rain of the previous days, and called upon Mr. Grennell, as toast-master, to read the sentiments which had been prepared for the occasion, which were responded to by various gentlemen present.

The number of persons present was estimated at from six to eight thousand. And considering the number of people assembled, every thing passed off in a quiet and orderly manner, doing great credit to the good taste and moral feeling of those engaged in the enterprise.

I should do injustice to my own feelings if I did not express my high obligation to the officers of the society and others, for the marked kindness and hospitality which rendered my mission to that county society exceedingly pleasant.

MOSES NEWELL.

BERKSHIRE.

By appointment of the Board of Agriculture, the undersigned attended the annual exhibition of the Berkshire Agricultural Society, which was held on the spacious and beautiful grounds of the society, in Pittsfield, on the 7th, 8th and 9th days of October last; the days were favorable, and every thing conspired to render the occasion attractive and successful.

The first day was devoted to the exhibition of all animals except horses, all articles of manufacture, agricultural and horticultural productions, agricultural implements, &c.

The show of neat stock, as a whole, was excellent, embracing about 250 animals; a large proportion of them were apparently of mixed breed, showing, generally, in a greater or less degree, the mark of Durham blood; there were some fine blood animals of the Durham, Devon, and Ayrshire breeds; there were but six yoke of fat oxen, some of them very good, particularly a pair owned by Mr. Enos Nourse, of Lanesborough, and also a pair of four years old, weighing upwards of 4,700 lbs., owned by George S. Willis, of Pittsfield.

Of milch cows there were about 20, mostly of fine appearance; one of them presented by H. E. Chickering, Esq., of Pittsfield, in the third week in June, gave 309 lbs. of milk, from which was made 21 lbs. 3 oz. of butter, and in the third week in September, 16 lbs. 2 oz. There were about 30 bulls on exhibition, some few of them of good appearance, but generally they were by no means extra. Of working oxen there were 22 yoke, all very good in appearance.

The show of sheep embraced many superior animals of the Leicester, South Down, French and Spanish Merino, and native breeds. Of swine there was a good display, and also of poultry.

The exhibition of agricultural and horticultural productions, manufactures and fancy articles, was in the society's hall, and continued through the first two days of the fair.

The show of vegetables, fruits and flowers, though not large, was quite fair. The varieties of apples and pears were not numerous, but there were several fine specimens. Many samples of grain were on exhibition, and notwithstanding the season was so unfavorable for its growth, there were thirty-six entries of corn for premium. To John M. Cook, of Lenox, was awarded the society's first premium for best acre; and in the committee's report, they express a belief "that it cannot be beat in the State. It weighed 80¾ lbs. to the square rod." If this rod was a fair average of the whole acre, and the corn in a fit state for harvesting, after making a liberal allowance for shrinkage, it must have produced not much, if any, less than 170 bushels to the acre.

The butter and cheese on exhibition was of excellent quality and in great quantity. There were forty-five entries of butter, and twenty of not less than 100 lbs. each, of cheese; this part of the exhibition fully sustained the high reputation which has so justly been accorded to this county, for its superior dairy productions. The samples of bread were numerous, and apparently of excellent quality.

The ladies' department was quite well filled with various specimens of their skill and ingenuity, not only in light handiwork, but in many of the more substantial articles of domestic manufacture.

There was not a great variety of agricultural implements, nor of mechanic arts, displayed.

The second day was almost entirely devoted to the exhibition of horses. The number of entries was large, and embraced many fine animals, and, judging from the large concourse of spectators who were in attendance, it seemed too evident that it was the most attractive feature of the Fair. A particular hour was fixed for the exhibition of each class, commencing at 9 o'clock, A. M., and as indicated by the programme, the proceedings were closed after a contest for trotting, which took place at 4 o'clock, P. M.

The undersigned regretted that his engagements at Boston, to fulfil duties assigned him by the Board, in assisting to make the necessary preparations for the State Fair, prevented him from remaining to witness the ploughing match on the third day, and also to hear the address of the Hon. Benjamin F. Mills, of Williamstown; he is happy to learn, however, from a reliable source, that they were in all respects satisfactory.

SAMUEL CHANDLER.

NORFOLK.

The undersigned, having been appointed a delegate from the State Board of Agriculture, to attend the Ninth Annual Exhibition of the Norfolk County Society, has the honor to report that he had great satisfaction in performing that service.

The exhibition took place on the beautiful grounds of the society, at Dedham, and occupied the two last days of September. The weather was most propitious, and every thing indicated the deep interest which is taken by the people of the county in these farmers' holidays. If rather more than a fair share of the attention of the spectators is given, on such occasions, of late years, to the display of fast horses, and to trials of speed in harness or under the saddle, it is an evil which will cure itself at no distant day. The farmers, who can control the action of their own societies, will interpose in their own proper way, and reassert the claims of genuine agriculture to its rightful proportion of regard.

There was a very creditable show of other varieties of animals, however, besides the horse, on this occasion, and the ploughing match, drawing match and spading match, were well contested and well attended.

Many valuable agricultural implements, and a beautiful show of fruits, vegetables and flowers, were witnessed in the society's hall. An admirable discourse by the Rev. Dr. Lamson, was followed by a most agreeable social entertainment, and the exhibition did not close without leaving a fresh impression on all who had been privileged to enjoy it, of the pre-eminent importance of that great department of human labor, by which God has ordained that his children shall be supplied with their daily bread.

ROBERT C. WINTHROP.

BRISTOL.

In accordance with my appointment by the Massachusetts Board of Agriculture, I attended the Cattle Show and Fair of Bristol County Agricultural Society, held at Fall River on the 30th of September and 1st of October, and submit the following report:—

The weather of the first day was delightful, and continued good through both days. At an early hour of the first day, I found myself in an inclosure fitted with numerous stalls, on a high hill, overlooking the river and surrounding country far above and below. It was a beautiful and well selected spot for the occasion. Very soon after my arrival there, the ground was filled with numerous yokes of cattle, bulls, cows, horses, colts, sheep, swine and poultry, all of which were highly creditable to the farmers of the vicinity. There were several fine mares and colts; among the latter were two from the celebrated horse "Ethan Allen," which attracted much notice. There was also a fine span of working horses belonging to Benjamin Rodman, Esq., of New Bedford, which were reported to have drawn a load of four tons up a steep hill, with ease. This feat I did not see, nor did I witness the ploughing and spading matches, both of which gave great enjoyment to those who witnessed them.

In the afternoon, I went to the "City Hall" expecting to find a great display of vegetables, fancy articles and manufactures; but in all these, was rather disappointed, more especially in regard to the latter. In this department, instead of beautiful specimens of linen, cotton and woollen goods, and articles of iron, steel, brass, copper, &c., &c., from all parts of the county,—save a fine display of barrels and bags of extra flour, made from Massachusetts wheat, at the "Massasoit Mills," a few agricultural implements, and a quantity of costly wrought coffins and expensive habiliments for the dead,—there was little to attract attention.

Here was the staff of life, and beside it the accoutrements of death. The latter not at all calculated to raise the spirits of visitors to a state of hilarity.

The vegetables were very good, especially the potatoes and squashes. Two kingly ones of the latter, weighing about two hundred pounds, from Taunton, were much noticed; but this town should have exhibited something more than great squashes. The quantity of vegetables exhibited was not large.

From the "City Hall" I went to the "Music Hall," and here my expectations were more fully realized. Four tables extending through the hall were loaded with fruit; several hundred plates of fine pears and a good show of apples, quinces, grapes, &c., &c., were displayed.

At the further end of the hall, far above our heads, stood "Flora," in her temple, surrounded by evergreens and beautiful living flowers; on her right was "Ceres," with her arms full of grain; and on her left was "Pomona," in her temple, adorned with oranges, lemons and grapes, which seemed fit food for the temptation of gods as well as men; and at her feet, scattered around, were fruits in great profusion. The whole place was beautifully and tastefully adorned with evergreens and flowers, doing credit to the fair of Fall River. The grapes and peaches from the garden of Dr. N. Durfee, the president of the society, excelled in size and beauty all of their kind which I had seen before in any part of the world. These, with the flowers from his greenhouse, were amongst the greatest attractions of the occasion.

On the second day, a "clam bake" was prepared in a fine grove, and tables were set for about one thousand persons, and these were nearly filled; and after the company had feasted on "chowder and clams," the president invited the officers of the society and the guests upon an elevated platform, erected for the occasion and informed the audience "that he was not there as the representative of the Bristol County Agricultural Society, as that was there itself; neither was he there as the representative of the State Board of Agriculture, as that had another there." He then gave an amusing and instructive account of his visit to Louisville, and introduced the Hon. C. A. Phelps, late speaker of the House of Representatives, who made an eloquent speech. He was followed by Judge Russell, of Boston, Hon. Benjamin Greenleaf, of Bradford, Mr. Westhall, of Fall River, and Mr. Wetherell, of Boston, all of whom spoke appropriate words, and the multitude of listeners left for their homes, apparently delighted with the proceedings.

To the president of the society and the members of his family, I am greatly indebted for kind hospitalities during the exhibition.

E. W. Gardner.

PLYMOUTH.

As the appointed delegate of the Board of Agriculture, to report upon the exhibition of the Plymouth Agricultural Society, I attended at Bridgewater, September 30th and October 1st.

The grounds, the hall, the appointments, and the management of this society have been crowned with a success that may put to the blush more pretentious societies in other parts of the State.

The grounds consist of about thirty acres, a short mile from the village. Within this tract, bounded on three sides by a beautiful creek, lies a broad, handsome meadow of some ten acres, used for ploughing and spading matches, and cattle pens; the remainder is just rolling enough to be suitable for the required purposes.

On the highest ground in the inclosure flanked by a beautiful grove stands the hall, a lofty building of two stories, 135 feet long by 65 feet wide, while around the whole is a track suitable for all the purposes of the society.

I confess to entire astonishment at the immense number of carriages, and the crowds of people present; the large proportion of women present was a gratifying proof of the interest felt by the people of the county.

The first thing was the ploughing match, which was spiritedly contested by twenty-three teams; the work was well done, some of it in a very superior manner. For the spading there were seven contestants who turned their small patches fast and evenly. Spading when carried deep enough, say two and a half feet as in trenching, is undoubtedly the most effective mode of cultivating, but the high price of labor in this country forbids it becoming general.

The trial of working oxen, of which there were thirty entries, proceeded on the hill in front of the hall. The cattle were not large as a general thing, but quick, springy, and exceedingly well broken.

The examination and exhibition of horses, of which there were forty entries, commenced about noon and continued through the day, as usual attracting the crowd. Some very fine horses were shown, and a few sharp travellers were driven round the course, which is not a fast one, in 3.05 to 3.10.

There were sixteen entries of bulls. I missed the majestic forms of the short-horns, but their places were filled with the beautiful Devons, which I presume are better adapted for that locality, and of which I saw some very good, and others, evidently grades which I do not like to see. Thirty-four entries of bull or heifer calves; twenty-two entries of yearling heifers and eight yoke of steers gave token of intention to raise some stock instead of letting it all go for veal as has been too much the fault of farmers all over the State; eighteen entries of fat cattle, most of which would bear feeding for some time. Of the twenty-five entries of swine there were some very good boars and pigs, Suffolk and Mackay. There were one hundred entries of sheep, and only three on the ground, recently imported by Capt. Barstow, who sent them merely for exhibition; they are full-blooded Liecester, are very fine sheep, and I should think a few such importations would awaken an interest in what is certainly a most profitable branch of agriculture, raising sheep for mutton and lambs; it affords the quickest returns and the largest profit on the investment, of any agricultural outlay. Capt. Barstow deserves great credit for the introduction of these sheep into the country.

One of the objects of much interest was a large wagon hung around with various farm products, all of superior quality, and drawn by four yoke of really fine oxen; this was sent from the Bridgewater State Almshouse, by Capt. L. G. Goodspeed, and was a very expressive voucher of his capabilities as a manager of stock and a cultivator of crops.

The exhibition hall presented a really splendid assortment of fruits, flowers, and vegetables, and was most creditable to the farmer and gardener of the Old Colony; it would be hard to beat. Bread, butter, cheese, and honey were well displayed and of good quality. The works of women's hands, the domestic manufactures, the fancy articles, the needle-work, were numerous and varied. Some specimens were very beautiful, and some indicated more of patient industry than artistic skill; but the show was large and fine. I was surprised in a county so eminent for various manufactures, not to see more than half a dozen specimens of the mechanic arts, the most noticeable of which was an organ harmonium, a sweet sounding and powerful instrument.

The arrangement of the hall was creditable, and the great crowd moved around without confusion, seeing every thing, touching nothing. Several specimens of native wine were exhibited, the proper manufacture of which should be encouraged. There was none equal to that made by Mr. Bull from his Concord grape, though great things are expected of a very fine native, Perkins seedling.

The second day opened brightly, and at an early hour crowds had assembled to see the exhibition of colts: following which was the great attraction of the day, the female equestrianism. Seven ladies, each attended by a gentleman, and escorted by the

North Bridgewater Band, who by-the-by played exceedingly well both days, entered upon the track and passed several times around at various gaits to the amusement and admiration of thousands. When so many people can receive so much pleasure at so little personal sacrifice, pray allow them.

At one o'clock a procession formed and marched to the large dining hall, in the second story of the building, where a dinner ample and good enough for the occasion was provided. After the important part of the meal was over, Charles G. Davis, Esq., president, made a few well-timed remarks, and very happily introduced the various speakers, who responded ably, amusingly and eloquently, while your delegate briefly acknowledged the compliment paid to the Board through him.

At the close of these proceedings the reports of the committees were read and accepted, and thus ended the thirty-seventh anniversary of the Plymouth County Agricultural Society, most creditable to the officers and to the people. Of all that crowd I did not see one case of drunkenness, or hear of any disorder or breach of the peace. The visits of delegates from the State Board seem to be well received and gratifying to the visited as well as the visitor, and a decidedly favorable impression of the operations of the Board seems to obtain generally.

It is right that I should specially acknowledge the kind civilities and attention received from Mr. president Davis, Judge Perkins, George W. Wood, of Middleborough, and Robert Perkins, of Bridgewater.

James S. Grennell.

BARNSTABLE.

Barnstable County has heretofore been represented as a barren waste, made up of sand hills and marshy plains. As an agricultural district, it has had but little reputation. Her sons have stood foremost as the bold pioneers of the deep, while her daughters have skilfully managed the affairs at home. They have planted churches and school-houses, and have raised a plentiful harvest of renowned sons and daughters. It was my pleasure, for the first time in my life, to visit the ancient town of

Barnstable on the morning of the 7th of October. It was a beautiful day ; all nature smiled, and as I wended my way along I soon found myself—as yet a stranger—within an inclosure of some fourteen acres of land, in the centre of which stood a magnificent structure, as yet unfinished, ultimately to become, for beauty and convenience, an agricultural hall not surpassed by many county halls in our Commonwealth.

This hall is the product of the generous donations of the sons of the Cape. They have already expended some three thousand dollars, and for its final completion it will require some hundreds more. It is every way capacious for the future wants of the society in all coming time. It would have added much to its appearance, had it been located on a more elevated spot of land.

On the first day of my arrival, where I met a hearty welcome, I busied myself in noticing the arrangement of the various articles for exhibition, more particularly the skill manifested by the ladies in showing up to the best advantage all fancy articles, together with fruits and flowers. Every specimen seemed to occupy its proper place. In these departments this society may well be gratified ; it would compare well with any other society in our State.

It has been said that at one time the ravages of the canker worm and other insects were such that the early settlers doubted whether the time would ever come when fruit, such as apples and pears, could ever be raised to any perfection on the soil of Cape Cod. But from the fine specimens exhibited at their recent fair they may be assured that by a generous culture they can be confident of a plentiful harvest.

In this county, horticulture, which is the nursery of agriculture, can but flourish while under the fostering care of the mothers and daughters.

The ploughing match, which in many counties is the leading cause of excitement, attracted but little attention ; but few persons were interested enough to witness it.

The exhibition of stock was very creditable. We cannot expect from the light grazing lands of the Cape to raise very fine cattle ; for them we must look to the rich valleys of the West. Vegetables were exhibited in great abundance, showing a very successful cultivation. I did not find that attention paid to the cultivation of the cranberry, which I expected ; I had received the impression that many of the peat swamps on the Cape had already become profitable from the raising of this fruit. But few specimens, however, were exhibited, and these, too, without any detail as to their culture worthy of interest.

The second day of the exhibition opened very auspiciously; the multitudes, from every part of the Cape came flowing in for hours, until every nook and corner was filled. This was the crowning day of the exhibition. At 12 o'clock, we were permitted to listen to a good practicable discourse from Hon. G. S. Boutwell. I was much gratified to witness so large and attentive an audience, unlike what I have often witnessed in other counties. It has become a question whether these agricultural addresses are profitable and instructive to the masses, and whether, as a general thing, the subjects treated are not beyond the comprehension of most of our farmers. We want the practical knowledge of the agriculturist, the common every day's experience of the tiller of the soil; and could farmers' clubs, so highly recommended by our worthy secretary, be established throughout the different counties in our Commonwealth, great good would eventually result therefrom.

We were soon summoned to a sumptuous dinner, graced by the presence of the fair ladies of the Cape, and here, after a few well chosen remarks by the worthy president of the society, giving the origin and progress of this institution, we were permitted to enjoy an intellectual feast from distinguished gentlemen present. Thus closed the thirteenth anniversary of the Barnstable County Agricultural Society, alike creditable to itself and to all those who have ever taken an interest in its prosperity.

NATHAN DURFEE.

NANTUCKET.

By the appointment of the Board of Agriculture, I attended the second annual festival of the Nantucket Agricultural Society, on the 13th and 14th days of October, and respectfully report.

The first day was devoted to the exhibition of stock and ploughing. The weather was delightful. The ground selected for the show was well chosen, and all nature seemed in harmony with the occasion. On entering the grounds, I found more and better stock than I had expected to see. No better cows are ever seen at any of our county fairs. I would mention those o. the president, E. W. Gardner, James Thompson, Shubael Worth, C. H. Clark, Matthew Starbuck, and others whose names I do not recollect. Herds of good cows were exhibited by Joseph M. Folger, Andrew M. Myrick, and Zimri Cathcart. There were several good bulls. I noticed an Ayrshire, belonging to the society, of firm proportions and marks of excellence. A large number of superior heifers, of three, two, and one years old. Oxen, I saw but five yoke, and those ordinary. There was a fine display of good, substantial work horses, and some beautiful young horses, but I saw none of the "2.40" kind; neither did I see any "trials of speed;" from which I infer that the people of Nantucket are not so "*fast*" as are those of the main. Sheep, but two lots were exhibited. Swine, but few, and those not good. Poultry, a good display of the most approved varieties.

The ploughing was the next in order. It was the first ploughing match, and caused great excitement. Thousands were collected to witness the contest. Ladies, in great numbers, were there, to cheer and to gladden by their smiles and their presence. The ploughs were not of the most approved kinds. The teams had not been well trained to the work, and I noticed that each ploughman had a driver, which I had never seen before, and which is not necessary in a well broken team. If the training is so imperfect as to require this, it should be an important consideration in the awarding of the premiums. Notwithstanding these unfavorable circumstances, the work was very well done.

The great *centre of attraction* was the "Athenæum Hall." The ladies had fitted up this large and beautiful "hall," so as none but *Nantucket ladies* could, in the most tasteful and magnificent manner. Language fails me in the description. Never had I seen any thing to compare with it; flowers in the greatest profusion, of the most rare and beautiful varieties, choice fruits fancy articles, embracing needle, crochet, moss, shell and leather work; embroidery, wax flowers, quilts, paintings and drawings; goddesses, mottoes, and beautiful singing birds; intermixed and intermingled one with the other, and arranged with exquisite taste and skill, in perfect order and harmony. This hall was open three days and evenings, and such was the interest here, that it was filled to overflowing, up to the last moment. And what would be wonderful any where else, not an article was taken or injured in the least, although every thing was open and exposed, showing the high standing of education and morals in this community. The evenings were spent very pleasantly, by music on the piano, speeches, and the singing of original agricultural songs and hymns. The prize song by the young school girl, Miss Getchell, descriptive of the articles in the hall, and giving the names of the contributors, (for which she is entitled to great praise,) was sung on Wednesday and Thursday evenings, with great effect.

Of fruits, a fine display. Quinces, in great quantities, the best I ever saw; beautiful pears in abundance, delicious grapes, apples and peaches, a few good specimens of each, and cranberries by the bushel, of the very best quality.

Vegetables by the load. Never had I seen better. The delicious Nantucket pumpkin—which every body should raise—large squashes, good potatoes, onions the very best, excellent carrots, beets and cabbages, and turnips of every variety.

The address on the second day, by Mr. Whipple, principal of the High School, was full of interest and instruction, showing a thorough knowledge of agriculture, and containing many useful hints of great value to the practical farmer.

The dinner at the Ocean House, on the second day, was a very important feature of the exhibition. A large number of the members of the society, ladies and gentlemen, with invited guests, sat down to a table bountifully supplied with all that could be desired. After the dinner, an hour was spent very pleasantly, by sentiments from the gentlemanly and witty secretary, speeches and toasts, and music by the band. I was happy to see the ladies. Never had I seen so many at an agricultural festive board. It is one of their "rights," which they should ever claim. The mothers, the wives, the daughters and sisters of the members, should always be present at the dinner table. They should also be better encouraged to bring forward for exhibition, those choice and beautiful articles of their industry and skill, by receiving more liberally of the premiums.* For much of our advancement in agriculture we are indebted to them.

Without their assistance and co-operation, no agricultural society can be creditably sustained, and, just in proportion as they are interested in any society, is the standing of that society.

The ball, on the evening of the second day, at the "Pantheon Hall," in which large numbers participated, was a brilliant affair. The music was excellent, the ladies charming, the arrangements good, and every thing in order. Who can object to this pleasant amusement when properly conducted, where all are so joyous and where all are so happy.

To Capt. Gardner I am indebted for a pleasant ride over the island. We saw some pieces of excellent corn, as good carrots, turnips, beets and onions, in patches of from one-fourth to one-half acre, as I ever saw growing any where.

Considerable attention is being paid to the cultivation of cranberries. We examined several pieces, all of which are very flourishing, and producing wonderfully. Mr. Edward Chase, from vines planted three years since, has picked this year, from one rod of ground, measured, three bushels and three half pecks. His method of planting is, to clear the ground of all the brush, roots and turf, to the muck or peat, and then strew the vines over the surface, and cover with about one inch of sand. May he thinks the best time for planting. Mr. Chase has raised, this year, from one-half acre, sixteen bushels of excellent spring wheat, which took the second premium at the State Fair. From one-fourth of an acre, he has picked and sold at Boston this year, 700 boxes of strawberries at thirty-three cents a box.

I mention these facts to show that this island is not all barren sand; that it will, if properly cultivated, produce as good crops as can be grown anywhere. The land on which this wheat and these strawberries grew, is no better, naturally, and produces no better, than will, if well cultivated, all that extensive waste over which we passed in going from the town to Siasconsit, where there is not a house, a fence, or even a tree on which the weary eye can rest, covered with huckleberry bushes and fern. But little attention has formerly been paid to agriculture, from the belief that this "beautiful island" was "nought but barren sand," and would not pay the expense of cultivation. More than four-fifths of the island is yet in a state of nature, uncultivated and unimproved.

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* Too often is it the case, that articles that have cost much time and labor, articles that are worthy of a high premium, do not so much as even receive honorable mention. These things ought not to be.

The planting of fruit trees is receiving considerable attention. Within the last nine years, 600 acres have been planted to pines, which are growing finely and looking well.

This agricultural society, the smallest in territory, the least in population, and the youngest sister in a family of twenty-one, is already in advance, in some respects, of many of her sister societies, and from present appearances, it needs no prophet to foretell, that she will soon compare favorably, in all respects, with any society in the Commonwealth.

In conclusion, I would most truly express my heartfelt acknowledgments to the officers and members of the society, to the president and the vice-president, Mr. Barney, and their families, for the hearty welcome, the cordial kindness, and the generous hospitality everywhere extended to me, and I shall ever remember with a grateful heart, the three days spent with this warm-hearted people, as among the pleasantest days of my life.

S. H. Bushnell.

APPENDIX.

CATALOGUE

OF THE

AGRICULTURAL LIBRARY,

IN THE SECRETARY'S OFFICE.

The books marked with an asterisk [*] constitute the library of the Massachusetts Society for the Promotion of Agriculture. Those marked [†] belong to the Secretary of the Board, and are on deposit for public use under the same regulations as the office library.

A.

A COMPARATIVE View of the Form and Character of our Racing and Mixed Breed of Saddle Horses during the last and present Centuries. London. 1855. 4°.

AGRICULTURAL Chemistry. See DAVY, JOHNSTON, MITCHELL and SQUARRY.

AGRICULTURAL Engineering. See ANDREWS.

AGRICULTURAL Intelligencer and Mechanic Register. Boston. 1820. 4°.

AGRICULTURAL Repository and Journal. See MASSACHUSETTS.

AGRICULTURE, Code of. See SINCLAIR.

AGRICULTURE and Chemistry. A Treatise showing the Connection between, by the Earl of Dundonald. London. 1795. 4°. [*]

AGRICULTURE Française par les Inspecteurs de l'Agriculture. 6 vols. Paris. 1843-44, '47. 8°.

AGRICULTURE of the County of Suffolk, General View of, by the Secretary of the Board of Agriculture. London. 1797. 8°. [*]

AGRICULTURE, Useful and Practical Observations on, by a Clergyman London. 1783. 12°.

AGRICULTURE, Concise History of. See BUEL.

AGRICULTURE, Essays relating to. See ANDERSON.

AGRICULTURE, Improved. See VANDERSTRAETEN.

AGRICULTURE, Practical. See SPROULE; also LOW, DICKSON, FOX, and BAXTER'S Library.

AGRICULTURE of the Counties of England and Scotland. See ALMACK, BILLINGSLEY, DOUGLAS, ERSKINE, LOWE, MIDDLETON, NAISMITH, PEARCE and SMITH.

AGRICULTURE, Science of. See HAYWARD and NORTON.

Agriculturist's Manual. See Lawson and Son.

Ainslie (Whitelaw). Materia Indica; or some Account of those Articles which are employed by the Hindoos, and other Eastern Nations, in their Medicine, Arts and Agriculture. London. 1826. 2 vols. 8°.

Album de Pomologie. Bruxelles. 1850–1. 2 vols. 4°. See Bivort.

Allen (Lewis F.) The American Herd-Book: containing Pedigrees of Short-horn Cattle, &c. 3 vols. Buffalo, 1853, '55, and '57. 8°.

Almack (Barugh). Report on the Agriculture of Norfolk. London. 1845. 8°.

American Agriculturist. A. B. and R. Allen, and Orange Judd, Editors. 1842–58. New York. Royal 8°.

American Almanac and Repository of Useful Knowledge for the Years 1854–57. Boston. 12°.

American Farmer. [John S. Skinner, Editor.] Containing Original Essays and Selections on Rural Economy and Internal Improvements, with Illustrative Engravings. 14 vols. Baltimore. 1819–33.

American Husbandry. Containing an Account of the Soil, Climate, Production and Agriculture of the British Colonies in North America and the West Indies, by an American. London. 1775. 2 vols. 12°. [*]

American Orchardist. See Thatcher.

Anderson (James). Essays Relating to Agriculture and Rural Affairs. 4th Edition. London. 1797. 3 vols. 8°. [*]

Recreations in Agriculture, Natural History, Arts and Miscellaneous Literature. London. 1799 to 1801. 4 vols. 8°. [*]

Andrews (G. H.). Rudimentary Treatises on Agricultural Engineering: Vol. I. On Building. Vol. II. On Motive Powers. Vol. III. On Field Machines and Implements. London. 1852–3. 12°.

Animals, Characteristics of. See Brown and Low.

Animals, Domesticated. See Low.

Animals, Invertebrate. See Gould.

Annals, The, of Agriculture; and Year-Book of Information on Practical Gardening. London. 1846. 8°.

Appendix to Report of the Commissioners of Crown Lands. Part II. With Illustrative Maps of Canada. Toronto. [*Presented by L. A. Huguet Latour.*]

Archives of Useful Knowledge. See Mease.

B.

Babo (Freiherrn L. von). Der Ackerbau nach seinen monatlichen Verrichtungen als Leitfaden für die landwirtschaftliche Praxis. Frankfort a. M. 1852. 8°.

Bannister (John). A Synopsis of Husbandry, being Cursory Observations in the several Branches of Rural Economy. London. 1799. 8°. [*]

Barral (J. F.). Journal D'Agriculture Pratique. 4th series.

Barry (P.). The Fruit Garden: a Treatise on Fruit Trees, Fruits, Propagation, Planting, Pruning, &c. Also on laying out Orchards, Gardens, &c. Illustrated. New York. 1851. 12°.

Bartram and Marshall, Memoirs of. See Darlington.

Bath Society. Letters and Papers on Agriculture, Planting, &c. Bath. 1792 to 1807. 11 vols. 8°. [*]

Baxter's Library of Practical Agriculture. A Work of reference to Farming, Breeding, Grazing, Dairy Management, Gardening, and Rural Affairs; comprising every Modern Improvement in Husbandry, sanctioned by experience. London. 1851. 2 vols. 8°.

Beckmann (John). History of Inventions, Discoveries, and Origins. 4th Edition. London. 1846. 12°.

Bee Culture. See Langstroth; also Eddy and Wildman.

Breck (Joseph). The Flower Garden: or Breck's Book of Flowers. Boston. 1856. 8°.

Billingsley (John). General View of the Agriculture of the County of Somerset. Bath. 1797. 8°. [*]

Birds, Architecture and Habits. See Library of Entertaining Knowledge.

Birds of Long Island. See Giraud.

Birds of America. See Wilson.

Birds of Massachusetts. See Peabody.

Bischoff (James). A Comprehensive History of the Woollen and Worsted Manufactures, and the Natural and Commercial History of Sheep, from the earliest records to the present period. London. 1842. 2 vols. 8°.

Bivort (A.). Album de Pomologie. Bruxelles. 1850-51. Vols. 3 and 4. 4°.

Blake (John L.). The Farmer's Cyclopædia of Modern Agriculture. New York. 1852.

The Farm and the Fireside, or the Romance of Agriculture. Auburn, N. Y. 1852.

Blacklock (Ambrose). A Treatise on Sheep, with the best means for their Improvement. New York. 1841. 12°.

Blight of Wheat. See Sidney.

Blodget (Lorin). Climatology of the United States. Philadelphia. 1857. 8°.

Bonafous (Matthieu). Histoire Naturelle, Agricole et Economique du Maïs. Beautifully Illustrated. Paris. 1836. 4°.

Bordley (J. B.). Essays and Notes on Husbandry and Rural Affairs. Philadelphia. 1799. 8°.

Botany, Elements of. See Schœder.

Botany, Principles of. See Coultas.

Botany, Papers on. See Reports on.

Botany of the Northern States. See Gray.

Boussingault (J. B.). Rural Economy in its Relations with Chemistry, Physics, and Meteorology: or Chemistry applied to Agriculture. Translated, with an Introduction and Notes, by George Law. New York. 1845. 12°.

BRADLEY (R.). A General Treatise of Husbandry and Gardening, containing a New System of Vegetation. Illustrated with many Observations and Experiments. London. 1726. 2 vols. 12°. [*]

BREEDING, and the Economy of Live Stock. See DICKSON.

BREWER (T. M.). Wilson's American Ornithology, with Notes by Jardine; to which is added a Synopsis of American Birds, including those described by Bonaparte, Audubon, Nuttall and Richardson. Boston. 1840. 12°.

BROUGHAM (Henry, Lord). Political Philosophy. Part I. Principles of Government. Monarchical Governments. II. Aristocracy. Aristocratic Governments. III. Democracy. Mixed Monarchy. 3 vols. London. 1846. 8°. [†]

BROWN (James). The Forester, A Practical Treatise on the Planting, and General Management of Forest Trees, with an improved process for Transplantation of Trees of large size. 2d Edition. Edinburgh. 1851.

BROWN (Thos.). Popular Natural History, or the Characteristics of Animals portrayed in a series of Illustrated Anecdotes. 3 vols. London. 12°.

BUEL (J.). A Treatise on Agriculture; Comprising a Concise History of its Origin and Progress, the Present Condition of the Art Abroad and at Home, and the Theory and Practice of Husbandry. Albany. 1820. 8°. (*)

BUTLER (T. B.). The Philosophy of the Weather, and Guide to its Changes. New York. 1856. 12°. (†)

C.

CAIRD (James). English Agriculture in 1850–51. 2d Edition. London. 1852. 8°.

CAREY (H. C.). Principles of Political Economy. Parts I. and II. 2 vols. Philadelphia. 1837. 8°.

CATALOGUE of the Cabinet of Natural History of the State of New York, and of the Historical and Antiquarian Collection annexed thereto. Albany. 1853. 8°. [†]

CATALOGUE of the Cambridge High School Library. Cambridge. 1853. 8°. [†] .

CATALOGUE of the Fruits Cultivated in the Garden of the Horticultural Society of London. 2d Edition. London. 1831.

CATALOGUE of the Mercantile Library of Boston. Boston. 1854. 8°. [†]

CATALOGUE of the New York State Library. 2 vols. Albany. 1855. 8°. [†]

CATALOGUE of the Public Library of the City of Boston. Boston. 1854. 8°. [†]

CENTRALBLATT des Landwirthschaftlichen Vereins in Bayern. 1854, '55, '56. München. 3 vols. 8°.

CHARREL (J.). Traité des Magnaneries. Paris. 1848. 8°.

CHEMISTRY, Agricultural. See LIEBIG.

CHEMISTRY of Animal Bodies. See THOMSON.

Chemistry of Common Life. See Johnston.

Chemistry, Principles of. See Stockhardt.

Chemistry and Geology. See Johnston.

Chinese Sugar Cane. See Hyde; also Olcott.

Chorlton (William). The Cold Grapery. New York. 1851. 12°.

Clark (Bracy). Farriery laid open; or the true Structure, Laws and economy of the Horse's Foot; also Podolphthora or a ruinous Defect in the Principle of Shoeing. 2d Edition. London. 1829. 4°.

Clater (Francis). Every Man his own Cattle Doctor; containing the Causes, Symptoms, and Treatment of all the Diseases incident to Cattle, Sheep, Swine, Poultry, and Rabbits. 11th Edition. London. 1853. 12°.

Coates (George). The General Short-horned Herd-Book. Vol. I. Otley. 1822. 8°.

Cobbett (William). The American Gardener: or Treatise on the Situation, Soil, Fencing, laying out of Gardens, &c. London. 1821. 12°.

A Treatise on Indian Corn: containing Instructions for Propagating and Cultivating the Plant, and for Harvesting, and Preserving the Crop; also an Account of its Uses, &c. London. 1828. 12°.

Collection des comptes rendus des Concours d'Animaux. Paris. 1850. 7 vols. 8°.

Cole (S. W.). The American Fruit Book. Boston. 1857. 12°.

Colman (Henry). First, Second, Third, and Fourth Reports on the Agriculture of Massachusetts. 2 vols. Boston. 1838, '39, '40, '41. 8°.

European Agriculture and Rural Economy. Boston. 1851. 2 vols. 8°.

European Life and Manners. 2 vols. Boston. 1849. 8°.

Coultas (Hartland). The Principles of Botany as exemplified in the Cryptogamia. Philadelphia. 1853.

Country Gentleman, The. A Journal for the Farm, the Garden, and the Fireside. Edited by Luther Tucker, and John J. Thomas. 1853–58. 10 vols. Albany. 4°.

Cranberry Culture. See First Annual Report of the Secretary of the Board of Agriculture.

Credit Foncier et Agricole des Institutions dans les divers états de L' Europe. Paris. 1851. 2 vols. 8°.

Cultivator: A monthly publication devoted to Agriculture. Albany, from 1834 to 1855. 22 vols.

Cultivator, Boston. 3 vols. 1839, '40, '41. Folio.

Currant Culture. See Haynes.

Curtis (William). Practical Observations on the British Grasses. 6th Edition. London. 1824. 8°.

Cyclopædia of Agriculture. See Morton, Wilson, Doyle and Blake.

D.

Dacre (B). Testimonies in favor of Salt as a Manure, &c. Manchester. 1825. 8°.

Dadd (Geo. H.) The Modern Horse Doctor. Boston. 1854. 12°. [†]

The Anatomy and Physiology of the Horse, with Illustrations. Boston. 1857. 8°.

The American Cattle Doctor. New York. 1853. 12°.

Darlington (William). Memorials of John Bartram, and Humphrey Marshall. Philadelphia. 1849. 8°.

Davy (Humphrey). Elements of Agricultural Chemistry, in a Course of Lectures for the Board of Agriculture; delivered between 1802 and 1812. 6th Edition. London. 1839. 12°.

Davy (John T.). Devon Herd-Book: Containing the names of the Breeders, the Ages, and Pedigrees of the Devon Cattle, with the Prizes they have gained. New York. 1855. 2 vols. 8°.

Deane (Samuel). The New England Farmer: or Georgical Dictionary. Worcester. 1797. 8°. [*]

Debates and Proceedings in the Convention of the Commonwealth of Massachusetts held in the year 1788, and which finally Ratified the Constitution of the United States. [Printed by Authority of Resolves of the Legislature. Boston.] 1856. 8°.

De Kay (James E.) Zoölogy, &c. See Natural History of New York.

Devon Herd-Book. See Davy.

De Lurieu (et H. Romand). Etudes sur les Colonies Agricole de Mendiants Jeunes Détenus orphelines et enfants trouvés. Holland, Suisse, Belgique, France. Paris. 1851. 8°.

Dempsey (G. D.). Rudimentary Treatise on the Drainage of District Lands. With Illustrations. London. 1849. 12°.

Denys (Leon D'Hervey Saint). Recherches sur L'Agriculture et L'Horticulture des Chinois et sur les vegetaux, les animaux et le Procédée Agricole que l'on pourrait introduire avec avantage dans l'Europe occidentale et le nord de L'Afrique. Paris. 1850. 8°.

Dewey (Chester). Herbaceous Plants of Massachusetts. Cambridge. 1840. 8°.

De Witt (Francis). Statistical Information Relating to Branches of Industry in Massachusetts, for the year ending June 1, 1855. Boston. 1856. 8°.

Dickson (James). The Breeding Economy of Live Stock. Edinburgh. 1851. 12°.

Dickson (R. W.). Practical Agriculture; or A Complete System of Modern Husbandry: with the Methods of Planting and Management of Live Stock. London. 1805. 2 vols. 4°. [*]

Dictionary of Husbandry in all its Branches: or the Complete Farmer. 4th Edition. London. 1793. 4°. [*]

Dissertation on the Nature of Soils and the Properties of Manure, to which is added a Method of making a Universal Compost. London. 1833.

Dobson (E.). Rudiments of the Art of Building. 2d Edition. Illustrated. London. 1854. 12°.

Dombasle (Mathieu). Calendrier du Bon Cultivateur ou Manuel de l'Agriculteur practicien. Paris. 1851. 12°. [†]

Donaldson (John). A Treatise on Manures, their nature, preparation and application—with a description and use of the most approved Grasses. London. 1846. 8°.

Donaldson (Prof.). Rudimentary Treatise on Clay Lands and Loamy Soils. London. 1852. 12°.

Donovan (Michael). Domestic Economy. Vol. I. Containing Brewing, Distilling, Wine-making, and Baking. Vol. II. Human Food, Animal and Vegetable. London. 2 vols. 12°.

Douglas (Robert). General View of the Agriculture of the Counties of Roxburgh and Selkirk. London. 1798. 8°. [*]

Downing (A. J.). Rural Essays—Horticulture, Landscape Gardening, etc. Edited, with a Memoir of the Author, by Geo. Wm. Curtis. New York. 1854. 8°.

The Fruits and Fruit Trees of America. Illustrated with Engravings. New York. 1851. 12°.

The Architecture of Country Houses, including Designs for Cottages, Farm Houses and Villas. New York. 1852. 8°.

A Treatise on the Theory and Practice of Landscape Gardening, adapted to North America. New York. 1852. 8°.

Cottage Residences or a series of Designs for Rural Cottages and Cottage Villas. New York. 1852. 8°.

Doyle (Martin). A Cyclopædia of Practical Husbandry and Rural Affairs in general. A new Edition. Revised and enlarged by the Rev. W. Rham. London. 1851. 8°.

Drainage, Treatise on. See Elkington, Dempsey and Stephens.

Drury (D.). Illustrations of Natural History of Insects. 3 vols. London. 1770. 4°.

E.

Eddy (Henry). On Bee Culture and the Protective Hive. A Guide to a Successful and Profitable Method of Bee Culture. With an Introductory Notice by J. V. C. Smith of Boston. Boston. 1855. 12°.

Economy, Domestic. See Donovan.

Economy, Principles of. See Carey.

Ellerbrock (Ignatz Joseph). Die Hollandische Rindviehzucht. Braunschweig. 1853. 8°.

Elliott (F. R.). American Fruit Grower's Guide in Orchard and Garden. New York. 1854. 12°.

Ellis (William). Husbandry, Abridged and Methodized: comprehending the most useful Articles of Practical Agriculture. 2 vols. London. 1772. 8°.

Elkington (Joseph). The Mode of Draining Land, Drawn up by John Johnstone, Land-Surveyor. Illustrated with nineteen Plates. New Edition. London. 1841. 12°.

Emerson (G. B.). Trees and Shrubs of Massachusetts. Boston. 1846. 8°.

Emmons (Ebenezer). American Geology. Vol. I. Albany. 1855. 8°.

Quadrupeds of Massachusetts. Cambridge. 1840. 8°.

Agriculture of New York, and Second Geological District of New York. See Natural History of New York.

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ROYER (M.) des Institutions de Credit Foncier en Allemagne et en Belgique. Paris. 1845. 2 vols.

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SALISBURY (William). Hints Addressed to Proprietors of Orchards, and to Growers of Fruit in General; comprising Observations on the Present State of the Apple Trees in the Cider Countries. Also including the Natural History of the Aphis Lana, or American Blight, and other Insects destructive to Fruit Trees. London. 1816. 10°.

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Skellett (Edward). A Practical Treatise on the Breeding Cow, and Extraction of the Calf before and at the time of Calving, in which the Question of Difficult Parturition is considered in all its bearings, with reference to Facts and Experience. Including Observations on the Diseases of Neat Cattle generally; containing Profitable Instructions to the Breeding Farmer, Cow-keeper, and Grazier, &c., &c. Illustrated with thirteen highly finished Engravings. London. 1844. 8°.

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Smith (Chas. H. J.). Parks and Pleasure Grounds: or, Practical Notes on Country Residences, Villas, Public Parks and Gardens. London. 1852.

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SPRENGEL (Carl). Meine Erfahrungen in Gebiete der Allgemeinen u. speciellen Pflanzen Cultur. Leipzig. 1847.

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THOMPSON (Zadock). Natural History of Vermont, with Engravings. Burlington. 1853. 8°.

TOPHAM (John). Chemistry made Easy. For the Use of Agriculturists. 3d Edition. London. 1846.

TORREY and GRAY (John and Asa). Flora of North America. Vol. 1. Polypetalous Exogenous Plants. New York. 1838–40. 8°.

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VAUX (Thomas). Outlines of a New Plan for Tilling and Fertilizing. London. 1840. 8°.

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VILLEROY (Felix). Manuel de L'Agriculteur Commençant, étant Bibliothéque du Cultivateur publié avec le concours de M. le Ministre de l'Agriculture. Tom. I. Paris.

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WILDA (Adolf). Landwirthschaftliches Centralblatt, für Deutschland. Repertorium der wissenschaftlichen Forschungen u praktischen Erfahrungen in Gebiete der Landwirthschaft. Berlin. 1856. 8°.

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Young (Augustus). Preliminary Report on the Natural History of Vermont. Burlington. 1857. 8°.

Young (Arthur). Six Months' Tour through the North of England. London. 1771. 4 vols. 8°. [*]

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Travels during the years 1787–89, for ascertaining the Cultivation, Wealth, Resources and National Prosperity of the Kingdom of France. Dublin. 1793. 2 vols. 8°. [*]

Young (John). The Letters of Agricola on the Principles of Vegetation and Tillage, written for Nova Scotia. Halifax, N. S. 1822. 8°. [*]

[B]

Inventory of Stock, Crops, Tools, &c., at the State Farm at Westborough, December 1, 1856.

3 yoke Oxen, $180,	$540 00
21 Cows, $40,	840 00
1 Hereford Cow,	200 00
1 Hereford Heifer,	175 00
1 Hereford Bull Calf,	300 00
1 Horse, Charlie,	150 00
1 Horse, Braley,	160 00
1 Mare, Kate,	130 00
1 Horse, Billy,	150 00
1 Jersey Cow, Alice,	150 00
1 Jersey Bull,	150 00
1 Jersey Heifer Calf,	25 00
1 Devon Cow,	100 00
1 Devon Calf,	25 00
1 Bull,	35 00
6 Fat Hogs,	160 00
8 Breeding Sows,	144 00
52 Shotes,	359 00
18 Sucking Pigs,	54 00
1 Boar, Suffolk,	25 00
68 tons English Hay,	1,020 00
9 tons Rowen,	90 00
1 ton of Meadow Rowen,	7 00
22 tons Meadow Hay,	176 00
1¼ tons Bromus,	10 00
1 ton Millet,	10 00
40 tons Corn Fodder, principally Husks and Stalks,	320 00
4 tons Rye Straw,	40 00
1470 bushels Indian Corn,	1,470 00
659 bushels Ruta-Bagas,	131 80
47 tons Carrots,	470 00
176 bushels Seed Potatoes,	132 00
60 " Small Potatoes,	12 00
40 " Oats,	20 00
50 " Rye,	50 00
100 " Beets,	25 00
4 Hay Cutters,	50 00
1 Feed Trough,	4 00
10 Hay Forks,	3 00
12 Hay Rakes,	3 00
22 Manure Forks,	17 00
40 Shovels,	20 00
18 Spades,	14 00
30 Picks,	22 00
2 Manure Rakes,	1 00
10 Iron Bars,	10 00
3 Stone Hammers,	5 00
1 Ox Wagon,	40 00
1 Two-Horse Wagon,	20 00
1 One-Horse Wagon,	30 00
3 Ox Carts,	70 00
4 Horse Carts,	160 00
3 Stone Drags,	4 00
10 Ploughs,	100 00
4 Harrows,	24 00
1 Cultivator,	3 00

1 Horse Hoe,	$5 00
2 Horse Harrows,	4 00
2 Hand Cultivators,	2 00
1 Job Wagon,	15 00
5 Ox Yokes,	8 00
10 Draft Chains,	12 00
1 Derrick Chain,	7 00
4 Stake Chains,	3 00
4 Trace Chains,	3 00
2 Ox Sleds,	10 00
2 Horse Sleds,	16 00
1 Sleigh,	20 00
Old Harnesses,	40 00
Stable Furniture, Buffalo, &c.,	10 00
Articles in Scale Room,	5 00
Iron Roller,	20 00
Fanning Mill and Corn Sheller,	12 00
Stone Elevator,	175 00
15 Bushels Seed Corn,	22 00
2 Bushels Seed Beans,	4 00
1 Seed Sower,	3 00
1 pair Steelyards,	2 00
1 Platform Scale,	7 00
1500 pounds Guano,	45 00
800 pounds Super-phosphate of Lime,	24 00
25 Strawberry Boxes,	1 00
30 Hoes,	8 00
10 Hand Drills,	6 00
2 Hand Hammers,	3 00
20 Wheelbarrows,	30 00
1 Beetle, with Wedges,	2 00
2 Grindstones,	10 00
4 Water Cans,	2 00
6 Bog Hoes,	2 00
4 Axes,	3 00
4 Wood Saws,	4 00
4 Ice Hooks,	1 00
1 pair Ice Tongs,	2 00
2 Cross-cut Saws,	6 00
2 Hand Saws,	2 00
3 Scythes and Snaths,	3 00
12 Grain Bags,	2 00
12 One-Bushel Baskets,	5 00
10 Milk Cans,	6 00
lot first quality Lumber,	50 00
3 Buckets,	75
Surveyor's Chain,	2 00
1 Ox Shovel,	6 25
1 Spirit Level,	2 00
1 Swill Cart,	42 00
1 Refrigerator,	11 00
1 Derrick,	50 00
Household Furniture,	206 41
1 Garden Rule,	1 00
24 Corn Cutters,	4 00
Total,	$9,402 41

[C.]

Inventory of Personal Property on the State Farm, Westborough, Dec. 1, 1857.

8 Oxen,	$745 00
17 Cows, $40,	680 00
1 Hereford Cow,	200 00
1 Jersey Cow,	150 00
1 Devon Cow,	100 00
1 Hereford Heifer,	175 00
1 Hereford Bull,	300 00
1 Hereford Calf,	50 00
1 Jersey Bull Calf,	50 00
1 Jersey Heifer,	50 00
1 Devon Heifer,	50 00
1 Devon Calf,	30 00
1 Grade Jersey Calf,	25 00
1 Grade Devon Calf,	25 00
5 Horses,	680 00
12 Fat Hogs,	240 00
45 Shotes,	360 00
16 Sucking Pigs,	32 00
5 Breeding Sows,	75 00
1 Suffolk Boar,	25 00
80 tons English Hay,	1,200 00
8 tons Rowen,	120 00
25 tons of Meadow Hay,	175 00
2 tons Millet,	30 00
5 tons Straw,	35 00
30 tons Corn Stover,	210 00
1000 bushels Shelled Indian Corn,	1,000 00
1561 bushels Ruta-Bagas,	260 00
1800 bushels Carrots,	450 00
50 bushels Seed Potatoes,	38 00
100 bushels Small Potatoes,	40 00
25 bushels Oats,	12 00
25 bushels Buckwheat,	19 00
185 bushels Beets,	46 00
124 bushels Parsnips,	41 00
4 Hay Cutters,	40 00
1 Feed Trough,	4 00
12 Hay Forks,	4 00
48 Hay Rakes,	8 00
24 Manure Forks,	30 00
80 Shovels,	48 00
26 Spades,	20 00
40 Picks,	40 00
2 Manure Hooks,	1 00
15 Iron Bars,	15 00
3 Stone Hammers,	5 00
1 Ox Wagon,	35 00
1 Two-Horse Wagon,	20 00
1 One-Horse Wagon,	30 00
3 Ox Carts,	60 00
4 Horse Carts,	160 00
4 Stone Drags,	7 00
10 Ploughs,	100 00
4 Harrows,	24 00
1 Cultivator,	3 00
2 Horse Hoes,	12 00
2 Hand Cultivators,	2 00
2 Horse Harrows,	4 00
2 Job Wagons,	90 00
5 Ox Yokes,	8 00

10 Draft Chains,	$12 00
1 Derrick Chain,	7 00
6 Stake Chains,	4 00
2 Ox Sleds,	8 00
1 Horse Sled,	5 00
1 Two-Horse Double-runner Sled,	12 00
1 Pleasure Sleigh,	15 00
1 lot of Old Harness,	35 00
1 New Harness,	18 00
1 Horse-cart Harness,	9 00
6 Trace Chains,	4 00
Stable Furniture,	10 00
Furniture in Scale Room,	5 00
1 Iron Roller,	20 00
1 Fanning Mill and Corn Sheller,	12 00
1 Stone Elevator,	165 00
8 bushels Seed Corn,	10 00
5 bushels Seed Beans,	12 50
1 bushel Seed Pease,	2 50
2 bushels Millet Seed,	4 00
1 Seed Sower,	3 00
1 set Steel-yards,	2 00
1 Platform Scale,	7 00
20 Strawberry Boxes,	1 00
48 Hand Hoes,	16 00
10 Hand Drills,	6 00
2 Hand Hammers,	3 00
12 Wheelbarrows,	20 00
1 Beetle, with Wedges,	2 00
2 Grindstones,	10 00
4 Water Cans,	2 00
6 Bog Hoes,	2 00
4 Axes,	3 00
6 Wood Saws,	6 00
4 Ice Hooks,	1 00
1 pair Ice Tongs,	2 00
2 Cross-cut Saws,	6 00
Carpenters' Tools,	20 00
4 Scythes and Snaths,	2 00
20 Baskets,	7 00
12 Milk Cans,	6 00
1 lot first quality Lumber,	25 00
1000 feet Pine Lumber,	16 00
4 Water Buckets,	1 00
1 Surveyor's Chain,	2 00
1 Ox Shovel,	6 00
1 Spirit Level,	2 00
1 Swill Cart,	40 00
1 Refrigerator,	10 00
2 Derricks,	75 00
Household Furniture,	156 00
1 Garden Rule,	1 00
24 Corn Cutters,	4 00
1 Root Cutter,	10 00
1 Saddle,	5 00
8 Iron-toothed Rakes,	3 00
3 Wheel Hoes,	3 00
	$9,344 00

Cash Account of the Treasurer.

Dr.					Cr.
1856-7.			1856-7.		
Dec. 1.	To cash on hand,	$57 75	Nov. 30,	By cash paid for labor,	$3,298 78
April 10,	" received of the State Treasurer,	1,100 00		" " for live stock,	1,136 50
" 23,	" received of the State Treasurer,	314 00		" " for farm expenses,	457 72
May 9,	" received of the State Treasurer,	175 00		" " for fertilizers,	366 70
" 11,	" received of the State Treasurer,	100 00		" " for rent on land,	79 82
" 12,	" received of the State Treasurer,	250 00		" " for repairs,	134 35
" 14,	" received of the State Treasurer,	200 00		" " for implements,	202 76
" 21,	" received of the State Treasurer,	200 00		" " for transportation,	32 90
June 4,	" received of the State Treasurer,	1,400 00		" " for permanent improvement,	43 82
" 20,	" received of the State Treasurer,	100 00		" " to S. N. White, on settlement,	28 98
" 27,	" received of the State Treasurer,	150 00		" " for interest,	15 30
Aug. 25,	" received of the State Treasurer,	2,010 30		" " for sundries,	124 94
December,	" received of the Treasurer of S. R. S.,	221 97		" " on hand, December 1, 1857,	357 15
		$6,279 72			$6,279 72

I have examined the foregoing accounts, and find the same to be correctly cast and properly vouched.

JOHN BROOKS,
Chairman of Auditing Committee.

Boston, Dec. 1, 1857.

Dr. BOARD OF AGRICULTURE *in account with the* COMMONWEALTH. Cr.

	Dr.			Cr.	
1856-7. Nov. 30.	To personal estate inventory of 1856,	$9,402 41	1856-7. Nov. 30.	By personal estate inventory of 1857,	$9,364 00
	Cash on hand, Dec. 1, 1856,	57 75		labor,	3,734 47
	" received of the State Treasurer,	6,000 00		farm expenses,	1,121 53
	" received of the Treasurer of the State Reform School,	550 00		live stock,	1,178 50
	" for corn,	376 11		fertilizers,	381 70
	" for rye,	34 00		rent on land,	197 40
	" for beans,	116 00		repairs,	248 01
	" for fruits,	236 19		implements	202 76
	" for potatoes,	289 37		transportation,	58 87
	" for garden vegetables,	198 20		permanent improvements,	1,921 83
	" for hay,	62 24		boys' labor,	1,961 60
	" for labor,	797 60		swill,	350 00
	" for milk,	1,057 32		contingent expenses,	104 52
	" for pork,	285 03		stationery,	3 33
	" for beef,	679 54		cash to S. N. White, on settlement,	28 98
	" for straw,	16 00		balance on settlement with State Reform School,	46 04
	" for wood,	38 50		interest,	15 30
	" for pasturing,	10 50		cash on hand, December 1, 1857,	357 15
	" from miscellaneous farm sales by S. N. White,	847 26			
December.	" received of the Treasurer of the State Reform School,	221 97			
		$21,275 99			$21,275 99

RETURNS OF AGRICULTURAL SOCIETIES FOR 1857.

FINANCES.

SOCIETIES.	Amount received from the Commonwealth.	Income of the permanent fund.	New members & donations.	All other sources.	Receipts for the year.	Premiums offered.	Premiums and gratuities paid out.	Current expenses of the year.	Disbursements for the year.	Indebtedness.	Value of real estate.	Value of personal property.	Permanent fund, (par value.)
Massachusetts, . .	$600 00	$1,944 50	-	-	$2,544 50	$2,854 96	$2,854 96	$387 09	$2,992 05	-	-	-	$24,600 00
Essex, ...	600 00	633 90	$198 00	$1,088 47	2,520 37	2,145 00	1,310 03	939 26	2,249 29	-	-	$12,169 07	8,138 31
Middlesex, ...	600 00	140 50	100 00	379 15	1,219 65	871 00	733 94	575 00	1,446 94	$275 00	$2,700 00	2,300 00	5,000 00
Middlesex South, .	600 00	30 48	77 00	714 61	1,422 09	930 50	361 61	400 00	1,216 61	3,750 00	7,050 00	985 00	8,035 00
Middlesex North, .	600 00	91 97	71 00	1,459 88	2,222 85	543 00	533 78	715 86	3,312 48	767 47	2,822 31	921 76	4,554 84
Worcester, ...	600 00	352 00	175 00	1,220 30	2,347 30	1,055 00	790 00	1,718 13	2,508 13	15,960 00	25,000 00	4,687 70	29,687 75
Worcester West, . .	600 00	132 00	45 00	-	777 00	762 00	535 87	202 00	737 87	-	-	3,278 98	3,278 98
Worcester North, .	600 00	193 40	100 00	312 07	1,205 47	721 75	566 73	251 70	818 43	-	-	3,550 00	3,550 00
Worcester South, .	349 80	91 14	48 00	13 25	502 19	463 00	268 76	188 05	426 80	-	-	1,822 00	1,822 00
Hampshire, Franklin and Hampden,	600 00	240 00	220 00	578 90	1,638 90	1,115 75	740 56	1,015 91	1,756 47	-	4,200 00	150 00	4,000 00
Hampshire, . . .	600 00	270 28	100 00	18 00	988 28	566 51	416 58	488 35	904 93	127 51	500 00	303 15	3,622 52
Hampden, ...	600 00	119 09	6,201 85	12,327 86	19,248 80	3,849 50	2,897 43	2,916 05	21,825 20	14,371 41	28,077 72	3,366 41	-
Hampden East, . .	377 00	89 00	15 00	364 50	845 60	603 62	314 89	189 99	492 11	98 60	-	2,325 00	2,220 00
Franklin, ...	600 00	230 93	55 00	365 01	1,250 94	697 00	608 00	881 00	1,439 00	-	-	150 00	4,715 00

Berkshire, ...	600 00	54 00	70 00	2,118 51	2,833 51	1,134 50	1,121 75	876 40	2,685 91	1,444 00	7,000 00	130 00	7,800 00
Housatonic, . . .	600 00	458 00	51 00	1,218 37	2,228 37	970 50	901 00	853 87	2,043 87	6,477 79	7,000 00	115 00	8,483 33
Norfolk, ...	600 00	-	239 00	6,565 95	7,404 95	2,225 00	841 00	2,059 57	7,840 57	5,800 00	10,414 00	-	10,414 00
Bristol, ...	600 00	275 84	78 00	1,501 77	2,445 61	1,388 50	965 30	905 33	1,870 63	-	-	4,440 00	4,440 00
Plymouth, ...	600 00	318 87	275 00	4,964 09	6,187 96	1,488 00	1,261 49	938 29	6,641 43	1,951 70	15,000 00	500 00	15,500 00
Barnstable, . . .	600 00	161 87	1,040 00	415 87	2,217 74	600 00	358 45	397 06	4,055 41	1,200 00	4,500 00	1,400 00	5,900 00
Nantucket, . . .	200 00	61 30	55 25	859 72	1,176 34	329 00	164 00	750 76	914 76	-	-	261 58	1,030 00
Totals, . . .	$11,726 80	$5,910 07	$9,214 10	$36,486 28	$63,228 42	$25,354 09	$18,546 13	$17,599 67	$68,178 39	$52,223 48	115,264 03	$42,857 65	$156,791 73

PERMANENT FUND—HOW INVESTED.

Massachusetts.—Bank stock in Boston banks and Massachusetts Life Office.

Essex.—Bank stock, notes and railroad bonds.

Middlesex.—Real estate mortgages, bank and railroad stocks.

Middlesex South.—In real estate, $7,050; pens, &c., $300; notes receivable on interest, $685.

Middlesex North.—In real estate, $2,822.31; notes, $2,500.

Worcester.—Bank stock.

Worcester West.—Promissory notes and cattle pens.

Worcester North.—Bank stock, notes of hand, and cattle pens.

Worcester South.—Loaned on collateral security to double the amount of the fund, except $255 in pens, tables, storehouse and fixtures.

Hampshire, Franklin and Hampden.—In notes secured by mortgages upon real estate to the amount of the entire property.

Hampshire.—In notes, mortgages, real and personal property.

Hampden.—No amount returned under oath according to law.

Hampden East.—In notes.

Franklin.—Notes and mortgages.

Berkshire.—In notes and real estate.

Housatonic.—In notes against individuals, bearing annual interest, being five hundred and nine, of $16.67 each, amounting to $8,483.33.

Norfolk.—In real estate occupied by the Society.

Bristol.—Bank stock and notes of hand.

Plymouth.—In thirty-one acres of land, exhibition-house thereon, cattle pens, tables, and house furniture. The land cost about $6,000; the house, $9,000; pens, furniture, &c., $500.

Barnstable.—In land, and building on the same, $4,500; notes, $1,100; and pens, $300.

Nantucket.—In notes (personal), and Ayrshire bull.

The total amount of all the property of the Societies is $178,175.68.

ANALYSIS OF PREMIUMS AND GRATUITIES AWARDED.

FOR FARMS, FARM IMPROVEMENTS, MANURES, &c.

SOCIETIES.	For management of farms.	For draining.	For subsoiling.	For ploughing at the Exhibition.	For reclaiming swamp lands.	For experiments with manures.	For spading.	For hedges and ornamental trees.	For reclaiming old pastures.	For orchards of all kinds.	For Cranberries.	Total am't offered for farm improvem'ts.	Am't awarded for farm improvements.	Am't paid out for farm improvements.
Massachusetts,	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Essex,	-	-	-	$109 00	$15 00	-	-	-	$10 00	-	-	$500 00	$212 00	$202 00
Middlesex,	-	$10 00	-	68 00	-	-	$15 00	-	-	-	-	109 00	93 00	93 00
Middlesex South,	-	-	-	51 00	18 00	$10 00	-	-	-	$21 00	-	254 00	100 00	75 00
Middlesex North,	-	-	-	51 00	-	-	-	-	-	-	-	66 00	51 00	51 00
Worcester,	-	-	-	86 00	15 00	-	-	-	-	-	-	100 00	15 00	15 00
Worcester West,	$50 00	-	-	32 00	-	10 00	-	-	-	-	-	90 00	50 00	50 00
Worcester North,	-	-	-	59 00	-	-	-	-	-	22 00	-	101 00	81 00	76 00
Worcester South,	-	-	-	29 00	-	-	-	-	-	-	-	164 00	29 00	29 00
Hampshire, Franklin & Hampden	-	-	-	-	-	15 00	-	-	-	-	-	35 00	15 00	-
Hampshire,	15 00	-	-	27 00	8 00	2 00	-	-	-	5 00	-	150 00	57 00	57 00
Hampden,	-	-	-	45 00	-	-	-	-	-	6 00	-	195 00	-	-
Hampden East,	-	-	-	22 00	-	-	-	-	-	-	$3 00	27 00	25 00	25 00
Franklin,	-	5 00	$10 00	25 00	11 00	10 00	-	-	5 00	22 00	-	120 00	88 00	83 00
Berkshire,	-	-	-	47 00	10 00	-	10 00	-	-	15 00	-	85 00	82 00	82 00
Housatonic,	-	-	-	48 00	10 00	-	6 00	-	-	24 00	-	-	-	-
Norfolk,	-	-	-	57 00	-	-	20 00	$15 00	-	25 00	34 00	495 00	151 00	206 00
Bristol,	-	-	-	63 00	-	-	11 00	-	-	45 00	-	383 00	119 00	119 00
Plymouth,	-	-	-	72 90	-	33 00	15 00	-	-	-	-	134 00	120 00	98 90
Barnstable,	-	-	-	14 00	-	-	-	-	6 00	-	5 00	106 00	25 00	25 00
Nantucket,	-	-	-	9 00	-	-	-	-	-	5 00	3 00	26 00	17 00	17 00
Totals,	$65 00	$15 00	$10 00	$914 90	$87 00	$80 00	$77 00	$15 00	$21 00	$190 00	$45 00	$3,140 00	$1,330 00	$1,303 90

FOR FARM STOCK.

SOCIETIES.	Bulls.	Milch Cows.	Heifers.	Calves.	Working Oxen.	Steers.	Fat Cattle.	Horses.	Sheep.	Swine.	Poultry.	Other Stock.	Amount offered for live stock.	Am'nt awarded for live stock.
Massachusetts,	–	–	–	–	–	–	–	–	–	–	–	–	$2,000 00	$2,000 00
Essex,	$87 84	$23 00	$42 38	$17 02	$36 48	$33 36	$32 24	$171 60	$32 00	$27 00	$20 00	–	539 00	522 92
Middlesex,	70 00	49 00	48 00	12 00	21 00	5 00	30 00	75 00	–	32 00	20 00	$34 00	459 00	336 00
Middlesex South,	29 00	31 00	17 00	8 00	20 00	12 00	13 00	72 00	–	34 00	7 00	–	292 00	243 00
Middlesex North,	33 00	29 00	10 00	19 00	22 00	15 00	11 00	61 00	–	34 00	14 00	–	281 00	234 00
Worcester,	56 00	15 00	52 00	20 00	43 00	70 00	23 00	187 00	25 00	71 00	35 00	–	784 00	598 00
Worcester West,	27 00	41 00	16 00	23 00	36 00	27 00	45 00	38 50	10 00	35 00	11 00	–	370 00	309 00
Worcester North,	18 00	43 00	15 00	32 00	27 00	27 50	37 00	57 00	5 50	33 50	9 00	30 00	301 50	334 50
Worcester South,	6 00	15 00	17 50	5 50	20 00	17 00	14 00	27 00	15 00	24 00	3 00	–	218 00	164 00
Hampshire, Franklin & Hampden,	27 00	37 00	28 00	15 00	66 00	42 00	30 00	190 00	23 00	39 00	3 00	181 16	625 00	678 16
Hampshire,	15 00	10 00	9 00	4 00	59 00	17 50	8 00	60 00	5 00	22 18	4 68	–	229 61	214 36
Hampden,	43 00	46 00	18 00	9 00	71 00	28 00	60 00	2,504 00	21 00	31 00	2 00	–	2,852 50	2,833 00
Hampden East,	25 00	34 00	15 00	12 00	24 00	25 00	18 00	77 00	21 00	25 00	1 00	–	377 50	277 00
Franklin,	22 00	12 00	10 00	9 00	29 00	66 00	29 00	63 00	29 00	16 00	2 00	93 00	330 00	380 00
Berkshire,	37 00	93 00	40 00	12 00	45 00	44 00	24 00	214 00	72 00	33 00	22 00	–	637 00	639 00
Housatonic,	21 00	43 00	25 00	3 00	52 00	42 00	13 00	81 00	61 00	21 00	9 00	18 00	421 00	389 00
Norfolk,	34 50	66 00	43 00	10 50	14 00	–	8 00	235 00	38 00	44 00	–	–	780 00	493 00
Bristol,	43 00	37 00	17 00	10 00	81 00	38 00	44 00	90 00	28 00	24 00	19 50	–	348 00	431 50
Plymouth,	32 00	26 30	28 80	34 00	54 00	33 90	61 80	194 40	–	40 00	20 00	–	527 00	528 20
Barnstable,	15 00	15 00	10 00	–	17 00	21 50	32 00	28 00	3 00	22 00	4 00	–	187 50	167 50
Nantucket,	23 00	20 00	6 00	–	12 00	–	–	11 00	3 00	5 00	8 00	–	102 00	88 00
Totals,	$664 34	$685 30	$467 68	$255 02	$749 48	$564 76	$533 04	$4,436 50	$391 50	$612 68	$215 18	$356 16	12,711 61	$11,920 14

ANALYSIS OF PREMIUMS AND GRATUITIES AWARDED—CONTINUED.

FOR FARM PRODUCTS.

SOCIETIES.	Indian Corn.	Wheat.	Rye.	Barley.	Oats.	Beans.	Grass Crops.	Grass Seeds.	Potatoes.	Carrots.	Beets.	Parsnips.	English Turnips.	Ruta-Bagas.	Onions.	Other Root Crops.
Essex,	–	–	$5 00	$10 00	–	–	–	–	–	$10 00	–	–	–	$10 00	–	–
Middlesex,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Middlesex South,	–	$6 00	4 00	–	–	–	–	–	–	–	–	–	–	–	–	–
Middlesex North,	$22 00	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Worcester,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Worcester West,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Worcester North,	15 00	5 00	–	3 00	–	$2 00	–	–	$3 00	–	–	–	$3 00	3 00	$3 00	–
Worcester South,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hampshire, Franklin & Hamp.,	–	–	–	–	–	–	–	–	5 00	–	–	–	–	–	–	–
Hampshire,	7 00	8 00	1 00	–	$1 00	–	–	–	3 00	3 00	–	–	1 00	–	–	–
Hampden,	1 50	–	4 00	–	–	50	–	$4 00	4 50	10 00	–	$3 00	2 00	–	1 25	$38 50
Hampden East,	75	1 50	1 12	–	75	1 50	–	–	1 25	50	$0 75	50	1 25	–	1 75	18 00
Franklin,	28 00	10 00	–	–	3 00	–	–	–	4 00	3 00	–	–	2 00	–	–	–
Berkshire,	34 00	21 00	21 00	15 00	21 00	7 50	–	3 00	15 00	6 00	5 00	–	7 50	6 00	1 00	35 00
Housatonic,	47 00	15 00	16 00	5 00	23 00	5 00	–	9 00	20 00	14 00	5 00	–	5 00	9 00	–	–
Norfolk,	16 00	10 00	4 00	–	–	–	–	–	5 00	–	–	–	–	–	5 00	28 00
Plymouth,	79 00	10 00	14 00	18 00	–	12 00	–	–	–	5 00	–	–	–	–	9 00	–
Bristol,	15 00	–	5 00	6 00	6 00	9 00	$8 00	–	–	8 00	–	–	–	13 00	–	8 00
Barnstable,	–	–	–	–	–	–	–	–	3 50	–	–	–	1 25	–	75	–
Nantucket,	5 00	7 00	–	–	–	–	3 00	–	6 00	3 00	–	–	3 00	2 00	–	–
Totals,	$270 25	$93 50	$75 12	$57 00	$54 75	$37 50	$11 00	$16 00	$70 25	$62 50	$10 75	$3 50	$26 00	$43 00	$21 75	$127 50

FARM PRODUCTS—CONTINUED.

SOCIETIES.	Sums offered for Grain & Root Crops.	Sums awarded for Grain and Root Crops.	Sums paid out for Grain and Root Crops.	Amount awarded for Broomcorn Brush.	For Fruits.	For Flowers.	For other Cultivated Crops.	For Butter.	For Cheese.	For Honey.	For Wheat Bread	For Rye Bread.	For Corn Bread.	Sums paid out for Farm Products.
Essex,	$205 00	$55 00	$55 00	–	$157 25	$56 50	$139 00	$57 00	$28 00	$2 00	$3 50	–	–	$477 25
Middlesex,	–	–	–	–	–	–	178 50	23 00	–	–	20 00	–	–	221 50
Middlesex South,	136 00	10 00	–	–	39 50	3 00	24 50	20 00	3 00	4 75	6 50	$4 50	$3 00	66 25
Middlesex North,	113 00	53 00	26 00	–	96 30	–	31 00	16 00	–	–	12 00	5 00	–	131 00
Worcester,	74 00	–	–	–	–	–	–	31 00	36 00	–	–	–	–	67 00
Worcester West,	–	68 00	–	–	11 00	2 75	3 00	21 00	39 00	–	3 00	1 50	1 50	82 75
Worcester North,	72 00	37 00	37 00	–	43 25	1 50	30 75	7 00	1 50	1 00	2 75	1 00	1 50	123 00
Worcester South,	–	–	–	–	15 20	–	–	9 00	9 00	–	10 00	–	3 00	–
Hampshire, Franklin and Hampden,	137 00	24 00	11 00	$6 00	33 00	9 50	5 00	10 00	9 00	2 00	2 00	2 00	2 00	69 00
Hampshire,	37 00	24 00	24 00	3 00	15 25	4 75	6 00	18 00	7 00	6 00	2 25	2 25	–	88 50
Hampden,	177 25	60 25	50 00	–	26 00	9 75	–	22 00	14 00	3 00	1 50	1 50	–	154 75
Hampden East,	50 87	29 62	10 23	–	24 00	75	5 00	9 00	9 00	3 00	3 00	1 50	1 50	50 00
Franklin,	82 00	57 00	57 00	7 00	16 50	–	–	6 00	7 00	1 00	3 50	2 00	–	100 00
Berkshire,	210 00	210 00	198 00	–	17 00	5 00	30 50	21 00	21 00	–	3 00	1 50	1 50	298 50
Housatonic,	186 00	178 00	178 00	–	31 00	6 00	32 00	21 00	21 00	1 00	3 00	3 00	3 00	294 00
Norfolk,	140 00	68 00	49 00	–	44 00	40 00	–	28 00	–	–	7 00	3 00	3 00	156 00
Plymouth,	248 50	28 87	137 00	–	–	–	110 50	39 00	39 00	5 00	5 00	5 00	5 00	300 00
Bristol,	241 00	78 00	78 00	–	91 00	15 00	–	19 50	15 00	19 00	10 00	–	4 95	272 95
Barnstable,	124 00	5 50	5 50	–	36 50	12 50	5 75	10 00	3 00	–	4 50	–	4 00	95 75
Nantucket,	87 00	32 00	30 00	–	24 00	10 00	6 00	5 00	–	2 00	3 50	–	–	52 75
Totals,	$2,320 62	$1,018 24	$945 73	$16 00	$720 75	$177 00	$607 50	$392 50	$261 50	$49 75	$106 00	$33 75	$33 95	$3,100 95

MISCELLANEOUS.

SOCIETIES.	Amount awarded for agricultural implements.	Amount offered for raising forest trees.	For other agricultural objects.	For mechanical inventions and domestic manufactures, &c.	Number of persons who received premiums and gratuities.
Essex,	$100 00	$30 00	$1,162 17	$197 25	370
Middlesex,	–	–	–	38 44	199
Middlesex South,	–	50 00	–	69 50	225
Middlesex North,	–	–	525 00	27 30	170
Worcester,	–	30 00	–	–	101
Worcester West,	9 09	30 00	–	43 12	150
Worcester North,	2 62	–	–	58 23	196
Worcester South,	–	50 00	–	16 00	98
Hampshire, Franklin and Hampden,	4 00	20 00	–	113 00	213
Hampshire,	13 00	6 00	27 75	43 52	288
Hampden,	41 00	25 00	–	300 00	175
Hampden East,	5 00	–	–	49 12	98
Franklin,	7 00	10 00	–	46 00	170
Berkshire,	16 00	–	–	89 25	320
Housatonic,*	10 00	–	9 00	97 00	222
Norfolk,	23 00	30 00	–	40 50	205
Plymouth,†	6 00	160 00	–	230 00	460
Bristol,	2 00	105 00	–	124 85	341
Barnstable,	–	10 00	–	75 00	125
Nantucket,	–	8 00	11 00	38 00	174
Totals,	$238 71	$564 00	$1,734 92	$1,696 08	4,300

* Awarded $20 for Female Equestrianism.

† Awarded $69 for Female Equestrianism.

Names of the Towns and Cities in which resided the persons when receiving the Premiums and Gratuities awarded by the County Societies, and the several amounts as disbursed.

ESSEX.

Amesbury,	$33 75	Lynnfield,	$2 00
Andover,	15 00	Marblehead,	58 00
Beverly,	15 30	Newbury,	224 06
Boxford,	37 88	Newburyport,	312 75
Bradford,	54 56	North Andover,	70 28
Danvers,	17 88	Rockport,	2 00
Essex,	21 36	Rowley,	19 64
Georgetown,	11 00	Salem,	142 00
Gloucester,	2 00	Salisbury,	9 00
Groveland,	29 00	South Danvers,	16 34
Hamilton,	14 00	Topsfield,	45 40
Haverhill,	29 96	Wenham,	2 00
Ipswich,	25 78	West Newbury,	162 48
Lawrence,	8 00	Total,	$1,381 42

MIDDLESEX.

Acton,	$49 75	Cambridge,	$20 00
Ashby,	7 00	Carlisle,	1 25
Bedford,	0 12	Chelmsford,	11 25
Billerica,	2 25	Concord,	280 59
Brighton,	11 00	Dracut,	6 00

MIDDLESEX — CONTINUED.

Framingham,	$45 62
Lexington,	33 00
Lincoln,	40 75
Littleton,	41 50
Lowell,	18 25
Marlborough,	10 00
Pepperell,	8 00
Sherborn,	1 00
Shirley,	3 00
Somerville,	0 25
South Reading,	1 00
Stow,	$14 25
Sudbury,	12 37
Waltham,	21 50
Watertown,	5 00
Wayland,	55 50
West Cambridge,	5 00
Westford,	7 62
Weston,	1 37
Wilmington,	15 00
Woburn,	4 75
Total,	$733 94

MIDDLESEX SOUTH.

Ashland,	$19 25
Framingham,	190 12
Holliston,	20 75
Hopkinton,	11 00
Marlborough,	32 75
Natick,	3 50
Newton,	$5 50
Sherborn,	14 75
Southborough,	21 00
Sudbury,	2 00
Wayland,	30 00
Total,	$350 62

MIDDLESEX NORTH.

Billerica,	$9 00
Chelmsford,	81 50
Dunstable,	47 00
Dracut,	32 50
Lowell,	190 18
North Reading,	21 00
Tewksbury,	$39 00
Tyngsborough,	39 62
Westford,	3 50
Wilmington,	19 00
Total,	$482 30

WORCESTER.

Auburn,	$12 00
Barre,	46 00
Berlin,	11 00
Bolton,	8 00
Boylston,	24 00
Charlton,	32 00
Grafton,	19 00
Hardwick,	8 00
Holden,	21 00
Leicester,	15 00
Millbury,	40 00
New Braintree,	$28 00
Northborough,	9 00
Oakham,	5 00
Princeton,	97 00
Shrewsbury,	14 00
Sutton,	61 00
Upton,	29 00
Westborough,	40 00
Worcester,	245 00
Total,	$764 00

WORCESTER WEST.

Barre,	$240 37
Bernardston,	6 00
Dana,	4 00
Gardner,	0 75
Hardwick,	105 25
Hubbardston,	9 75
New Braintree,	32 75
North Brookfield,	4 00
Oakham,	14 75
Paxton,	$0 75
Petersham,	23 25
Phillipston,	10 50
Princeton,	70 00
Rutland,	75
Templeton,	4 00
West Brookfield,	7 00
Worcester,	3 00
Total,	$536 87

WORCESTER NORTH.

Ashburnham,	$1 50
Ashby,	11 50
Fitchburg,	267 48
Hubbardston,	$1 00
Leominster,	22 25
Lunenburg,	26 00

WORCESTER NORTH — CONTINUED.

Leominster,	$22 25	Sterling,	$39 75
Princeton,	163 25	Townsend,	3 00
Royalston,	1 00	Total,	$558 93

WORCESTER SOUTH.

Brimfield,	$12 00	Southbridge,	$25 75
Brookfield,	10 16	Spencer,	1 00
Charlton,	73 75	Sturbridge,	25 75
Dudley,	7 00	Warren,	15 37
Holland,	8 00	Webster,	50
North Brookfield,	11 50	Total,	$190 78

HAMPSHIRE, FRANKLIN AND HAMPDEN.

Amherst,	$22 00	Middlefield,	$10 00
Belchertown,	10 00	Northampton,	234 00
Chesterfield,	1 00	Palmer,	5 00
Chicopee,	4 00	Shelburne,	1 00
Conway,	23 75	South Hadley,	100 50
Cummington,	13 00	Southampton,	34 00
Deerfield,	3 40	Springfield,	30 00
Easthampton,	32 15	Sunderland,	16 00
Feeding Hills,	2 00	Westfield,	73 44
Goshen,	7 00	Westhampton,	11 00
Granby,	13 00	Whately,	14 00
Hadley,	65 25	Williamsburg,	25 50
Hatfield,	112 00	Worthington,	1 00
Holyoke,	9 00	Total,	$883 99
Huntington,	11 00		

HAMPSHIRE.

Amherst,	$137 23	Lowell,	$1 00
Barre,	8 00	Montague,	1 25
Belchertown,	7 75	Northampton,	7 50
Boston,	3 00	Pelham,	2 87
Chicopee,	2 50	Prescott,	3 00
Conway,	5 50	Shutesbury,	50
Granby,	20 25	South Hadley,	41 00
Hadley,	67 00	Sunderland,	109 29
Hatfield,	5 00	Ware,	3 00
Leverett,	23 99	Total,	$449 63

HAMPDEN.

Agawam,	$3 00	Ludlow,	$14 00
Brimfield,	8 00	Monson,	50 00
Chester,	8 00	Springfield,	436 00
Chicopee,	81 50	West Springfield,	100 00
Granville,	50	Westfield,	90 00
Holyoke,	7 50	Wilbraham,	101 50
Longmeadow,	103 00	Total,	$903 00

NOTE.—Paid individuals out of the County, including the premiums of the Horse Show, $2,017.50.

HAMPDEN EAST.

Belchertown,	$25 25	Palmer,	$167 37
Brimfield,	32 50	Wales,	6 00
Holland,	8 00	Wilbraham,	74 62
Monson,	99 75	Total,	$413 49

FRANKLIN.

Ashfield,	$3 50	Leyden,	$1 50
Bernardston,	40 75	Montague,	6 50
Charlemont,	6 00	Northfield,	10 50
Coleraine,	10 00	Orange,	7 50
Conway,	45 50	Shelburne,	198 00
Deerfield,	101 00	Sunderland,	82 00
Erving,	10 50	Whately,	10 00
Gill,	12 00	Windsor,	3 00
Greenfield,	64 50	Total,	$617 75
Heath,	5 00		

BERKSHIRE.

Adams,	$46 00	Monterey,	$5 00
Alford,	5 00	New Marlborough,	3 00
Becket,	4 00	Peru,	4 00
Cheshire,	23 00	Pittsfield,	318 75
Dalton,	32 00	Richmond,	43 00
Egremont,	47 00	Sheffield,	16 00
Great Barrington,	40 00	Stockbridge,	131 00
Hancock,	1 00	West Stockbridge,	16 00
Hinsdale,	24 00	Williamstown,	34 00
Lanesborough,	134 50	Windsor,	18 50
Lee,	46 00	Total,	$1,118 25
Lenox,	126 50		

HOUSATONIC.

Alford,	$27 50	Great Barrington,	$234 50
Egremont,	147 50	Lee,	18 50

HOUSATONIC—CONTINUED.

Lenox,	$60 00	Richmond,	$13 00
Monterey,	22 50	Sandisfield,	10 00
New Boston,	5 00	Sheffield,	199 00
Norfolk,	2 00	Stockbridge,	101 00
North Marlborough,	20 50	West Stockbridge,	35 00
Pittsfield,	5 00	Total,	$901 00

NORFOLK.

Bellingham,	$1 00	Medway,	$41 00
Braintree,	2 00	Milton,	18 00
Brookline,	23 00	Randolph,	12 50
Canton,	9 00	Roxbury,	16 50
Dedham,	187 00	Sharon,	5 00
Dorchester,	123 00	Stoughton,	12 00
Dover,	53 50	Walpole,	18 00
Foxborough,	7 00	West Roxbury,	22 00
Franklin,	47 50	Wrentham,	48 00
Medfield,	63 50	Total,	$709 50

PLYMOUTH.

Abington,	$54 61	Hingham,	$3 00
Bridgewater,	319 77	Kingston,	5 25
Carver,	30 00	Lakeville,	6 00
Duxbury,	4 00	Mansfield,	8 00
East Bridgewater,	167 75	Middleborough,	116 65
Halifax,	62 85	North Bridgewater,	185 55
Hanson,	15 49	Pembroke,	36 75

PLYMOUTH — CONTINUED.

Plymouth,	$37 55	West Bridgewater,	$159 86
Plympton,	54 55	Unknown,	9 69
Rochester,	7 25	Total,	$1,296 57
Wareham,	12 00		

BRISTOL.

Attleborough,	$2 00	Raynham,	$95 00
Berkley,	17 00	Rehoboth,	20 00
Dartmouth,	30 00	Seekonk,	14 00
Easton,	21 00	Somerset,	75 00
Fairhaven,	15 00	Swanzey,	7 00
Fall River,	325 30	Taunton,	144 00
Mansfield,	23 00	Westport,	90 00
New Bedford,	18 00	Unknown,	3 00
Norton,	65 00	Total,	$968 00
Pawtucket,	4 00		

BARNSTABLE.

Barnstable,	$287 50	Provincetown,	$4 50
Chatham,	12 00	Sandwich,	19 25
Dennis,	4 00	Yarmouth,	28 75
Falmouth,	75	Total,	$361 25
Harwich,	4 50		

NANTUCKET.

Nantucket,	$236 00

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Fat cattle 11

ABSTRACT OF RETURNS

OF THE

AGRICULTURAL SOCIETIES

OF

MASSACHUSETTS,

1857.

EDITED BY
CHARLES L. FLINT,
SECRETARY OF STATE BOARD OF AGRICULTURE.

BOSTON:
WILLIAM WHITE, PRINTER TO THE STATE.
1858.

PREFACE.

Many of the Reports of the past year contain an unusual amount of interesting and valuable reading, the result of intelligent practice and thoughtful preparation.

"To make up a volume of such reading," says the prompt and efficient secretary of the Essex Agricultural Society, "the reports of the various committees must be prepared with some special care and attention. It will afford but little satisfaction to others, to have a bald statement of the award of premiums; but if the report contain the reason of the awards, a comparison of the relative merits of the competitors—suggestions as to the failure of the unsuccessful, and such remarks as the experience or reflections of the writer may prompt him to offer, it will then form a paper worthy of perusal and preservation. It is in the power of every one who contributes to our pages, to earn for himself the enviable distinction that he has done what he could. This certainly is all that can be required—with less than this we ought not to be satisfied. Any one who reads the early reports of the society, will see at once that a sense of personal responsibility governed the writers of them. They felt that they wrote for posterity—why should not we thus write our reports, and make our statements of agricultural experiments?

"It may be said—and indeed, it often is said—that but little if any thing new can be brought forward in our reports. This may well be doubted, if taken in a broad sense—but if it be true, what then? Will not old truths bear repeating? Do they not need repeating, not merely in agriculture, but in morals and religion? The mere way of stating an old truth or fact, will sometimes give to it the freshness of a new truth or new fact. Different minds see things in different lights, and it may be that the view taken of a given subject in a report of this year, will carry conviction to some man, who has heretofore failed of being convinced of the same fact; it may not only enlighten his intellect, but rouse his ambition and determine his will to enter upon and steadily to pursue a better course of husbandry than he has before practiced. It may form the turning-point of his life; and to that report—however poorly the writer may have thought of it at the time—belongs the high honor of accomplishing this good result. No one, therefore, should be deterred from putting forth his best efforts in preparing a report, by the apprehension that he can impart nothing new. Let him tell what he knows—tell it, too, in the best way he knows how, and the report itself will tell with effect on some who read it."

The above sensible and judicious remarks should commend themselves to the chairmen of committees throughout the State. The object of distributing large sums of money by the Commonwealth, is not merely to encourage the farmer by the hope of premiums, but to elicit and spread abroad useful information. This is a point too often overlooked both by the officers of societies and the chairmen of committees. A glance at the operations of some of the societies will show that they are alive and active, adding something each year to the stock of knowledge in the community and to the rapidly accumulating treasures of agricultural literature, while others, drawing an equal amount from the Commonwealth and under equal obligations are doing literally nothing in this direction. Their names will be sought for in vain on the following pages, either because their reports are made up of bare awards, which in their nature can be of only local interest, or because they were returned to me too late to use, or because they were returned in such an unpardonable condition that it was not possible to use them. I need not particularize, but if these glaring faults on the part of a few of the societies are not speedily remedied, a sense of duty will compel me to name them hereafter, and to point out, in detail, wherein they fail to comply with the spirit of the law. The prompt publication of all the transactions of the society and the distribution of them over the county, is one of the most direct and sure ways of doing good and awakening an interest in improvement.

This, I know, requires great and persevering labor on the part of the secretary of the society, but if he is not willing or able to perform it, he should at once give place to some one who is, and not stand in the way of a society's usefulness.

The law requires that the returns should be made complete on or before December tenth, of each year. The object of the law was to make it possible to prepare and print an abstract of the returns, and to have it ready for distribution at an early date, and not merely to have the bare details of the finances and other statistical matter, which would not very materially facilitate the printing and preparation of the Abstract. A full compliance with the *spirit* of this law is of the utmost importance for the credit of the society and of the State. The apology most frequently made for a non-compliance is, that it is not possible to finish the printing by that date. That depends entirely on the efficiency of the secretary. A few of the societies publish full and complete reports of two hundred pages or more, and place them promptly in my hands on or before the date required. There can therefore be no good reason why other societies, printing a less amount, cannot equally well comply with the law. Let the chairmen of the committees be impressed by the president and secretary of the society with the importance of promptness and faithfulness in making their reports, and of preparing them, in the main, *before the exhibition*, subject to modifications suggested by the exhibition, and to the addition of the awards, and the reports and transactions of the society would soon attain a higher value and a more general interest. We should, above all, avoid falling into a regular routine,—a way of doing things in the same manner year after year. Change and novelty, though not always improvements, are important means of awakening interest and fixing the attention.

The arrangement of the present volume is, in the main, the same as that of last year, which has been found, on the whole, to be most convenient for reference. A complete index will be found at the end.

The financial returns of the societies will be found in the Appendix to the Fifth Annual Report of the Secretary of the Board of Agriculture.

C. L. F.

BOSTON, March 15, 1858.

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1858.

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Secretary—JOHN B. KING, of Nantucket.

AGRICULTURE OF MASSACHUSETTS.

THE FARMER'S HOME AND ITS EMBELLISHMENTS.

From an Address before the Essex Agricultural Society, Oct. 1, 1857.

BY. E. G. KELLEY.

Not the least formidable opposition to the beautifying of New England homes, arises from the still lingering influence of the Puritans. Our fathers came hither with prejudices equally strong against the highly ornamented hereditary estates—the beautiful architecture of palaces and churches—as against the policy of church government and discipline of the old religions of other countries. Hence the plainest constructed houses—churches without spires or other ornaments, common to this day, with some religious sects. Time has modified these prejudices, but a spirit of asceticism still prevails, which argues upon the principle, that it is wrong to place one's affections on any thing in this world.

If what some call extravagance is justified at all, it is in improving and beautifying your home, where others can enjoy it around you. It savors not of vanity or personal aggrandizement, nor does it lead to forbidden pleasures or vicious lives. On the contrary, as we will soon show you, such expenditure is a profitable investment; it is the withholding, that tends to poverty. It in fact, fosters that which, in all its tendencies, employments and enjoyments, is the very safeguard and handmaid of religion itself—the embellished and beautiful, the peaceful and hallowed home. A German writer says, "He who cannot comprehend the beautiful has no heart for the good." "The apprehension of elegance and of excellence usually enters the mind together." Cowper truly says:—

> "Religion does not censure or exclude
> Unnumbered pleasures harmlessly pursued;"

and after detailing those of rural life, he adds:—

> "These, these are arts pursued without a crime,
> That leave no stain upon the wing of time."

It would be a comparative waste of time to contrast the morals connected with home, and the best of home influences, with those of the homeless and less cared for. Daily are instances before you; no events of life are more painfully familiar; you all know and deprecate them, and anticipate the tirade we should give you in their detail. We would rather persuade to the possession of such homes as will induce the domestic and social virtues to take up their permanent abode, and to be cherished, loved and practised by every inmate—hourly inculcated by the presiding genius of the place, the home mother, who here makes the first impressions on the future man, whose deep affection for her will be his talisman through life; her memory a monitor to prompt him to every good, and to warn him of erring danger.

We come now to the independent farmer, who, as Dodsley says:—

> "Fears no man's frown, nor cringing waits to catch
> The gracious nothing of a great man's nod."

We know our man; he is an antagonist against whom the club of Hercules is impotent,—whom the lever of Archimedes cannot move,—who will have the mountain removed to the sea before there's faith for him. The old fashioned farmer has strong prejudices—is wedded to his long established habits, and fortified against any and all innovations.

If an artful schemer succeeds, as has been done in some instances, in sinking for him half his property in a railroad, which has, perhaps, cut his farm in twain, and ever after as the steamo-motive, as he calls it, whistles by, frightening his horses, endangering the lives of children and cattle, bringing his hired men to an idle stand still, till out of sight, and giving but small or no returns for the money invested, he ends his days with imprecations on this and all other new enterprises.

Another may have been induced to cultivate his soil deeper—to use the Michigan and subsoil ploughs, and to drain some of his land ; but of the meaning of such words as mulching and irrigation he has very indefinite ideas, nor does he care to know more. But alas, for our unfortunate word, embellishment. This he has not even read of in the books ; it is something more intolerable than book-farming ; he can only think of the last decoration in his daughter's bonnet, it must be some species of finery—farm embellishment! why, no man in his senses would recommend such a thing !

Now we undertake to say, that many such farmers are indulging unwittingly, or slothfully, it may be, in certain kinds of embellishments more extravagant and expensive than any we shall advise. It is not uncommon to see one or both sides of his fences lined with what may be called variegated hedges. Yet no man in all England, that land of hedges, ever presumed, with all his wealth, taste and extravagance, to support two hedges and a fence between them. He is satisfied with one hedge, or a fence simply, or at most with a cheap fence, for a few years, till the young hedge is grown. It was doubtless these luxuriant, picturesque, variety hedges of our farmer, that his favorite poet saw, when he exclaimed :—

> "I passed by his home, I saw the wild brier,
> The thorn and thistle grew broader and higher."

It is well known that the land thus wasted by the side of these fences is his very best, where leaves, &c., accumulate, and the place of all others for a thrifty, secluded row of regular trees—either fruit or ornamental, as he may fancy—the chief object of which should be to protect his crops from bleak winds and destructive storms ; for be assured we have no decoration to recommend that has not utility connected with it.

Again, this class of farmers are utterly opposed to the cultivation of flowers, as of no profit—corn and potatoes only would they have. If the wife or daughter raises a few beautiful, harmless flowers in the front yard, the gruff man seldom passes them without a fling; and if now present, he is expecting to hear us justify them; but we never advise too much of a good thing; the unlucky farmer is already in for it, too much for our liking.

If you will observe his fields about the 25th of June, you will see them overspread with flowers—perhaps one entire mass, according to the most recent floral instructions for display. Not satisfied with our indigenous flowers, he prefers an exotic, but why this to any other, must be for its association with some of his stock, its common name being bull's eye. He has the fever for embellishment so high, and cultivates this so extensively, that he can raise nothing else with it; his hay is therefore flowers, and he feeds his cattle on flowers; he is in fact, in a perfect elysium of flowers—such a degree of sublimated embellishment and felicitous enjoyment that we should not think of, lest we might overdo the subject and lose sight of profit.

For another variety of natural embellishment peculiar to the anti-improvement farmer, he is indebted to the caterpillar. The traveller often observes some half dozen of their clustered festoons upon each wayside apple or cherry tree, and as if to make their domestic arrangements more conspicuous, the trees, in many instances, are suffered to be entirely denuded of their foliage. The adjoining neighbors, satisfied perchance with the natural beauty of the trees and their fruits, and not able to afford the extravagant waste attending this species of decoration, are nevertheless annually infested with an army of volunteers from our hero's premises, adding greatly to their labor of extermination, with no legal remedy.*

Still another cause for various ornamental devices is the depredation of the crow. The future historian of American art and taste may expatiate largely upon the cornfield statuary, from the man of straw supplicating Ceres, to the threatening aspect of the Roman gladiator, down to images more hideous than those of Nicholas Nickleby and all the designs of Cruikshanks. The antiquarian will also find this a fruitful field in his search for unique costume, from the days of William Penn to Lord Raglan.

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* "In Flanders," Radcliffe says, "when the caterpillar commences its attack upon the trees, every farmer is obliged to destroy those upon his own premises, to the satisfaction of the mayor of his particular commune, or pay the cost of having it done for him."

These references to long established customs have been made to forestall the mental criticisms of any who may be jealous of the subject. If they savor of ridicule, it is not in the sense of trifling, for no one has more respect for the farmer and his calling, than he who was a farmer's boy and is now returning to his first love. Men will stand convincing reason, persuasive argument and conviction itself, but not ridicule. This is a most potent weapon to be wielded in any reform, and will often prove effectual when other means fail. A dozen set speeches in Parliament would not have produced the reform in the school system of England equal to the ludicrous description of Dothboy's Hall on "brimstone morning."

With all deference to these peculiar embellishments and others of the same character that might be named, we would suggest none but such as will make the farmers and their families happier and more contented, richer and more respected in these homes of their fathers and of their childhood, free from many of the harrassing cares of the busy world. The poet truly says:—

> "Happy is he, who in a country life,
> Shuns more perplexing toil and jarring strife;
> Who lives upon the natal soil he loves,
> And sits beneath his old ancestral groves."

Progress is emphatically the order of the day. In all mechanical avocations, every successful invention is seized upon and appropriated at once. The horticulturist is on his march with rapid strides, and many an agriculturist is not far behind in the successful pursuit of his arts. His government is doing much for his especial benefit, by reports and statistics, and in importing from other countries seeds and scions of the most improved products of the field and garden, and forwards these even to his own post office.

While some are awake and availing themselves of every facility offered for their own and the agricultural interests of the country, the great object is to arouse a general interest and activity. It is this slothful indifference of a dormant portion that allows evils to pervade and curse the land, like the thistle and white weed just alluded to, which are permitted to mature and the seeds to be scattered on a neighbor's premises, who would have eradicated them, but found unco-operative efforts in vain.

The large majority, however, in agriculture, are on the high road to prosperity ; its general interests are safe, the danger is in prospect of over doing. Progress is not always improvement ; one may progress too far, and in the wrong direction. It is quite time that in this, as well as in other employments, the pioneer forces were brought up to reflect, to mature, to embellish, to enjoy. The tendency is to add acre to acre, ship to ship, to enrich, to excel, to monopolize. The wealthy farmer is ready to wear himself out with toil and anxiety, to die prematurely and alone, his family dispersed, the old homestead unattractive, forsaken, forgotten.

This, then, is the propitious time for such views as we present to you to-day, to enter and take hold on the public mind. Every product of the soil, the herd and the dairy, commands a price never before permanently realized in this country ; and the means of producing are more simplified and certain, more than an offset for the increased price of labor. Many farmers are also very wisely attending to other business than their own, during winter and other leisure time, affording them profit and ready cash. There is, therefore, annually increased means for necessary outlays and improvements.

The first and great motive to be urged upon the owner of the farm home, is to secure thereto the attachment of his children. It is the darling object with most agricultural parents, to keep their sons at home and to induce them to follow contentedly the same calling in life. How well they succeed is familiar to all—their failure is acknowledged and deprecated on all hands.

The agricultural press teems with advice to the sons, but not a word of instruction to the fathers, with whom is the remedy. Neither parents or writers strike at the root of the evil, but seem rather to defeat their own object. They portray to the youthful imagination the temptations and vices of city life—the uncertainty and vexations of all pursuits but their own ; all of which but serves to excite curiosity rather than conviction, and ends in the familiar decision of the boy, that he also "will go through the mill."

We do not think it advisable that every farmer's son should be persuaded to spend his whole life in agricultural employments exclusively, in the face of adaptation to other business. Nor should they be longer suffered, in their childhood and youth, to imbibe disgust or even distaste for country life, by too severe toil and drudgery; or by comparing the slovenly, dilapidated condition of their homestead, with the trim and orderly appearance of a more tidy neighbor's. If advantage is taken of the susceptibility of tender years to permanent impressions, by presenting every thing that is pleasing in rural life and home, a love will be created, which, though latent for years, while other duties engaged the attention, from pecuniary or other considerations, will be revived in after years into as active life and enjoyment as if in constant exercise. With such impressions, arguments will be the most effective and often detain the young man at home.

The difficulties in the way of inducing an adequate number of young men to attend to all the duties appertaining to the cultivation of the soil, are much less than formerly. Up to the era of manufacturing by machinery, and transportation by railroad, most country families wore home-made clothes and carried their produce to market with their own teams. Among the first trips of the young lad to the country village or city with his father, he compared the loose frock of the latter with the broadcloth coat of the merchant or professional man—contrasted their manners and deportment, and felt the difference in his own dress and that of the boys around him. As he approached the town he noticed flowers and foliage on trees he had not seen before—houses neatly painted, front yards decked with beautiful colors of nature and art; and as he entered the parlor of the parish parson, its ornamented and mirrored aspect almost bewildered his young eyes and fancy. On his return all these were in his thoughts, and he frequently alluded to them, often to the disturbance of the father, who began to think his boy had already seen too much of the world.

Now here is the critical point in the management of the son, from which the father too often takes a repulsive, instead of an attractive course, to secure his love and attachment to home.

We will not dwell to name the score of reasons offered in vain by the father to check the tendency and influence the conduct of the young son. The parent has virtually given his child a taste of delicious fruit, and while still before him, harmless and intended for him, forbids his eating more. The pictured handbill of the menagerie excites his strong and innocent desire to see the reality; better let him go, and go with him, than press disappointment too far.

Here, then, we have some of the most important principles of action, viz.: to gratify, to please, to make happy. The question then arises, shall parents, shall the farmer, meet these demands of childhood, of youth, of human nature itself, on his own premises, within his own control and discretion, or shall he surrender these privileges, these absolute duties, yea, his children also, to others, to chance, to the reckless, the depraved, the homeless?

We are confident there is not a parent who will not agree with us in the answer. Let him then beautify and adorn his front grounds and farm, as time and means will allow, which Cowper calls—

> "Delightful industry enjoyed at home,
> And nature in her cultivated trim,
> Dressed to his taste ———."

Different tastes and localities will of course so modify all decorative arrangements, that no rules would be generally or specially applicable, even were we capable of giving them. We shall only attempt, therefore, to throw out a few hints, aware that details are tedious to the listener. Paint upon wood is acknowledged to be economical on planed surfaces, and this should be extended even to barns and out-buildings, particularly when newly built. Planing and preparation of cheap paints by machinery, render these desirable merely for durability. Fences, particularly near the buildings, whether plain or ornamental, add so materially to the neatness and thrifty appearance of a place, when colored with some of the cheap pigments, or even whitewashed, that we wonder they are so often neglected.

This feature of paint, when thus applied, adds much more to the market value of a place than the cost of applying. We once knew a small farm, thus brushed up at a cost of less than fifty dollars, to sell for many hundreds more than its estimated value ; and the neighbors, rather than do likewise, made themselves merry at the whitewashing, as they termed it, of the retired tradesman, the purchaser.

There is much latitude for the display of taste in the selection of colors and their adaptation to surrounding objects and scenery. The change from the general use of white, particularly in the suburbs of some cities, so severely criticised by Dickens when in this country, to separate and mixed colors, is generally an improvement to the landscape, if not in all instances. Any color however, even sombre red, would be preferable on farm houses to no color at all, which we once saw recommended, for if such advice was followed we should expect to see all painted black. This would indeed be appropriate on the tops of chimneys, where the remaining part and the house itself are white ; the contrast and finish then being perfect, so far as paint is concerned.

We will take occasion to say, in this connection, that no small matter, in the construction of a house, adds more to its embellishment than an ornamental chimney. Why should such elaborate finish and enormous expense be lavished on the spire of a church, whose apparent use is only to support a vane, while the spire of a dwelling-house, which serves many important purposes, is simply a pile of bricks. As soon should one think of walking the streets without a hat, as to build a house with a plain chimney ; the economy would then be consistent, though not in accordance with the present custom.

The architecture of dwelling-houses will be left to the means and disposition of the proprietor. The money expended on these will seldom be realized again by sale. But it would be cheaper to build a well-proportioned house according to approved and established styles, than the plain, awkward things so common ; and it is certainly more appropriate and agreeable, to see a beautiful and tasteful house in the country, surrounded as it is, or ought to be, with much that is pleasing and ornamental in nature, than amid the streets and wharves of a city, where each one builds higher and more elaborate, from feelings of rivalry according to his rapidly accumulated wealth, and for present gratification, with fitful fashion. But not so with him of rural habits; higher, nobler and more enduring motives actuate him. A comfortable, inexpensive, permanent abode is his, where reasonable and rational enjoyments abound to himself, his family and friends.

We anticipate a marked and early attention to rural architecture, when wealth, taste and appreciation of home embellishments shall be more general. The lodge, summer-house, aviary, arbors, arches and trellises in their appropriate places add materially to the finish of a beautiful residence, and should be erected according to its character. No one, however, should be without some of the last named in his garden and grounds, which may be simply and cheaply constructed and covered with climbers, affording rest, shade and pleasure to visitors.

The remodeling and modernizing of old and plain houses, if large, are likely to be attended with difficulties and prove unsatisfactory; but many smaller ones may be essentially improved by additions—their value enhanced, and be rendered more commodious and pleasing to both young and old.

In building barns, ample room is of the first importance. Every vehicle and implement belonging to the farm, should be always under cover, when not in use. It is the very poorest economy to have these exposed to the weather at all times and seasons; yet how often does one see carts and sleds lying about the habitations of the more slothful farmers in any and all places—a species of embellishment peculiar to himself. A place for every thing and every thing in its place, is a maxim that should be both practiced and inculcated.

A few convenient windows, a cupola or latticed dome for necessary ventilation, give a suitable finish to its exterior. Provision, however, should always be made under the eaves and by openings at the ends for the accommodation of swallows—birds which never feed on fruits but are of great service to the farmer in behalf of his crops, independent of the cheerful animation they give to any place. The usual internal arrangements and eneonomy, admit of change for greater convenience and saving of manure, improved plans for which are occasionally figured in agricultural periodicals.

We come now to the farm itself, the owner of which, will doubtless justly contend, that his beautiful fields of waving grains and grasses, and his pendent boughs laden with golden and crimson fruits, are his first and most appropriate embellishments. While your premiums have long stimulated to excellence in these luxuriant staple products, we trust the time is not distant when the same will be offered for improvements not less deserving of competition and reward in themselves, but which will tend still more to elevate the profession of agriculture in the community. A very liberal beginning has already been made in the right direction in the "Fay premium," through the munificence of our enterprising President, but experiments of individuals have been thus far, we believe, unsuccessful. It remains, possibly, for the society itself to set the example on its own opportunely presented farm, and make that a model farm-home, worthy of inspection and imitation by individuals of the entire county, for their own private benefit.

Numerous fences crossing a farm at right angles, so common in all directions, are unsightly and expensive and should be dispensed with as much as possible. For division lines and where the owner decides on a permanent fence, for durability, the stone wall, when well made on dry land, is not to be given up. It is high time, however, that many of these were rebuilt during the leisure periods. They are as zig-zag as a Virginia fence, trundle down at every touch, and it is a kind of slavery to be constantly repairing them. To surmount these with stakes and rails is a form of embellishment not to be recommended.

Large inclosures are necessary to the more extensive and profitable introduction of horse implements and machinery, indispensable for the saving of labor in conducting farm operations. It is a question, whether cheap, movable wire fences may not be substituted for some of our clumsy and more expensive stationary ones. For confining stock for a given time to any portion of a pasture desired, or for cultivating a part only of a permanent inclosure, this portable fence may serve a good purpose. The president of the society has already had considerable experience in keeping his flocks of sheep in this manner.

Front fences on roads or streets, should be more ornamental than elsewhere, and kept in good condition ; but in this, as well as some other points alluded to in this address, we intend the proviso of the delinquent preacher, who said, "Do as we say, and not as we do." Hedges of various kinds may be here used if exposed to cattle only on the road side, where they may be lined with a wire fence.

Hedges have been long and extensively used in older countries, where they add much to the beauty of the landscape. While many of these live fences are more for ornament than protection, they may be made to serve for both. The difficulty attending their introduction into this country, where they would be more exposed to animals, has been, to find a tree or shrub adapted to our climate, and sufficiently formidable for defence.

The Osage Orange is being tried on the western prairies with success, but for New England, we have no doubt the three-thorned acacia (*Gleditschia triacanthos*) is the most suitable, if not the only one to be depended upon for field purposes. These, as age increases, have thorns that no animal will encounter. They are quite hardy, grow rapidly; their foliage is beautiful, and being of the locust family, if like that, they do not impoverish the soil, they will be invaluable.

The agriculturist, being an ample owner of land, has the power of excelling all others in the cultivation of trees of all kinds, fruit, forest and ornamental, the most rapid means of changing the aspect of grounds destitute of all scenic beauty, to the most effective in the line of embellishment. He may smile at the use of the word cultivation, in connection with forest trees, but the period has arrived in their history when art must come to their aid. He has swept the primeval forests from the face of the country with a wasteful hand, not sparing even enough to propagate the species by the curious construction of their episperms, to be disseminated and grow spontaneously. Would he again have the nakedness of the land clothed with verdure, profitable in itself, and serviceable in protecting other things, he must go about it deliberately, as he would the raising of any other crop. This has long been attended to in other countries with satisfactory remuneration for a series of years, besides being highly ornamental.

Acres on acres may be seen with us in all directions, not however on every farm, almost barren wastes, producing neither grass nor valuable trees, but crowded so thickly with obnoxious shrubbery, that the former cannot obtain a footing. These lands are not only excessively embellished through the neglect of the owner, but in the products, he does not graduate the supply to demand; the locality is particularly unfortunate. Even his whortleberries are in such abundance as not to be very lucrative. If the oleaginous bayberries were in the vicinity of Paris, their cultivation would pay; were the juniper berries in Amsterdam, Holland gin would fall; the low juniper hugs the ground with a tenacity worthy of a better husbandman; the lambkill finds not even a stray sheep to deprive of her young, and the azaleas and rhodoras flourish and flower, their beauties unseen and unsung.

Now while there is scarcely a shrub from these desolate regions that we have not transplanted to our own humble grounds, and nurse as if rarities, (and we might add that when we have asked this privilege of the owners, they have looked upon us as just from Somerville, or a fit subject to go there,) a more impoverishing growth does not exist on any soil, or which the farmer would more gladly exterminate, however much the abstract admirer of accidental and neglected nature may value them for their peculiar beauties.

Contrast this state of things with the same territory covered with a growth of timber trees, highly valuable as such,—clothed with one mass of dense foliage,—absorbing nutriment from the atmosphere, which they purify,—giving out moisture when most needed,—beautiful at all times,—brilliant beyond comparison with any other scenic feature of the landscape, when they mature and fall to the ground, themselves the pabulum for successive growths, constantly enriching the soil, unattended with the expense of other fertilizers.

Were the wood cut off every thirty years for fuel or other purposes and its quantum of ashes returned to the surface, we doubt not the average net income, considering the labor bestowed and the increased fertility of the soil, would be greater than by any other mode of husbandry, on the same quality of land. But in addition to all these considerations of beauty and utility, and the increased market value of acre for acre, the protection of these woods to surrounding fields, and their actual modification of local climate, which is a well established fact well worthy the attention of the landholder; it is their association with home, their connection with the family, which gives them their chief value.

The boy, who in his childhood and youth roamed at will in these wild forests,—sounded his shrill clarion voice to its utmost pitch, and while he listened to its echo, felt the very pulsations of health at this distension of his chest and lungs,—charmed at every variety around him,—inspired by the sweet music of the songsters, think you not, will have such indellible impressions made on his young heart by these enchantments of home, as will never be effaced by time or absence, but cherished to an extent equalled only by the hallowed influences of his mother.

Of this retreat he is ever fond. Now he finds a full supply of wild berries amid its undergrowth,—he is cooled and refreshed in its shade, and his companions are merry around him, enjoying his sports of hunting the partridge and other wild game that may chance to be there, or trouting in the gurgling stream; and if business or duty calls him hence, he returns in after years, with increased enjoyment, and sweetest memories of this scene of his happy youth.

But of that sultry, interminable waste of surfeiting bushes, just referred to, belonging to the neighboring farmer, his son is soon tired and ashamed whenever he frequents it. A solitary remnant of the old forest, which serves as a resting place for the weary birds, has been so often struck by lightning that he dares not venture thither for shelter. He wends his way to the public road where he encounters a city gentleman, with his fast horse and elegant equipage; they bandy words, which are unfavorable to the character of his father and his home, for good management and thrift. This touches his sensibilities, lessens his slight attachment to the latter, and he resolves to seek his fortune and happiness elsewhere. Of his future, we will not speculate; but if unpropitious, will not the parent be more or less responsible, who has virtually driven his son from him by not providing a home to be loved, to be proud of, to be happy in?

The varieties of trees indigenous to this country, from which to make selections for ornamental purposes, are numerous compared with those of other countries. One hundred and thirty-seven are classed by Michaux, thirty-seven peculiar to France —one hundred more being natives of North America. Many foreign species are however equally hardy and desirable.

Agriculturists should by no means dot their fields indiscriminately with ornamental trees to sap and shade their crops.

Pastures, however, should always have clumps of trees interspersed at various points, for shade to all kinds of stock. These thrive better thus cared for than if exposed to the glare of the summer's sun. This arrangement relieves the monotony of the scene and obviates the necessity of rows of trees around the premises. Loudon says, in this connection: "It is astonishing how much better cattle thrive in fields even but moderately sheltered than they do in an open and exposed country."

Where not impracticable, locally, every owner of land enough to warrant it, should devote an acre, more or less, near his dwelling, to ornamental purposes. If he will keep this in grass and cut it several times during the summer, he will realize more from it in the aggregate than an average crop, preserve its lawn character and adapt it to the wants of his children, as a play-ground, at all seasons. This reserved plat should be decorated with the most pleasing varieties of trees for their foliage, flowers, fragrance and ornamental fruits, when such can be conveniently obtained; otherwise, the best the neighboring country and nurseries afford.

Particularly, neglect not trees of an evergreen character, which give to a place a living, cheerful appearance, even during the most dreary periods of winter. They are far more serviceable for screens to protect from bleak exposures, at the time when deciduous trees have lost their foliage; and to many persons they are more agreeable at any time. Who does not admire their towering forests—their fragrant groves—their secluded dells and sequestered shade? Transplant them then to your own grounds, to enjoy their ambrosial bowers, at your leisure and pleasure. Bryant thus muses:—

"Beneath the forest's skirt I rest,
Whose branching pines rise dark and high,
And hear the breezes of the west
Among the threaded foliage sigh."

Especially set out shade trees in the road sides or streets bordering your premises, if your towns will not do it, their entire lengths. Protect and nourish these while young, and they in turn will screen you from beating storms and scorching sun, and will ever be a credit to your private enterprise and public spirit; and as you pass them to the parish church or village store, you and your children will enjoy their shelter—the work of your own hands. Future generations as they drive along these magnificent avenues will call you blessed. They will bless the land and the husbandman of this day.

These graceful elms and gorgeous maples will ever mark the limits of your own grounds. The traveller is grateful for their shade—checks the pace of his weary horse—admires their luxuriance—gets his first impressions of the thrifty and tasteful owner from them, and as he approaches the farm-house asks the little boy with a cheerful countenance at the gate, "Dose your father live here?" "Yes, sir." "When were these trees planted?" "The year I was born." "How old are you?" "Ten years, sir." This interesting dialogue continued, reveals to the stranger a home and happiness which he already more than suspected, but to which he was indeed a stranger. Think you this man would not give more for such a place, extra, than the original paltry cost of the trees! Would he not give more for that acre of pleasure ground, the delighted boy had doubtless described to him, than for any other acre on the farm? Then away with your objections to such embellishments on the score of dollars and cents, or that they are superfluous and inappropriate to your calling, or without an equivalent; and look for a moment to their still higher value, too much lost sight of by most parents.

Did any thing occur in conversation with this stranger to mortify the boy's pride or diminish his love for home? Did he notice even the color of the horse, the style of the carriage, or the cut of the coat? Not he. Engrossed entirely was he in words that reflected credit on the management of his father—the beauty of his home; that encouraged his respect for the one, and cherished his attachment to the other; and in the language of the subject, "as the twig is bent," &c., he is safe for the future —he will be a man, a husband, a citizen, a Christian, a patriot, yea, he will be qualified and may be called from the plough, like Cincinnatus, to rule the nation. And he will be the man for it —for any duty or emergency at home or abroad.

Planted at his birth, grown with his growth, equally have these trees with himself remained by, defended and adorned the same home, till they have become giants in their respective spheres. At the age of fifty the son returns, it may be, from civil duties to the homestead. Offer him fifty dollars for one of his favorite trees, now massive and splendid, or offer it to the aged father who planted it at the birth of his first born, and they will equally spurn the bribe. Trees that originally cost fifty cents, have therefore increased in value one dollar a year —some of them in the highways where nothing else would have been raised. We say then plant trees, plant at once, plant if you will at every birth, which was a righteous law of some nation we have somewhere read of.

A substantial farmer in an adjoining town has four thousand apple trees and two hundred cherry trees, in full bearing and of the best varieties. He estimates that one-half of his crop of the latter, the past season, was taken by the birds. Now instead of this being an argument with others not to join him, it is the very reason why they should. The birds of the entire neighborhood flock to his orchard and fairly rob him; but if all the neighboring farmers would take hold as he has done, the quantity taken from each would be trifling, and profit would be realized. So with apples; if all entered as largely into the same business the market would not be overstocked, but new facilities would be opened for shipping to a more profitable wholesale market than is offered to a limited supply.

But for the next half century, at least, pears will doubtless be the most lucrative orchard fruit, for home market. Enormous and increasing prices are constantly paid for this fruit, single and in quantities. The winter varieties, such as require but little more care than apples, are the kinds for extensive culture, and there is no reason why agriculturists should not raise this fruit as well as horticulturists. Indeed, the large landholder is the one, not only to excel in its standard orchard culture, by selecting his best adapted soil for its growth, but to bring it down to an *eating* as well as living profit. So dear is this fruit, and so few cultivate it, that the majority do not have it at all. The boys act on the principle of the birds, and the remedy may be the same, in part.

But alas! what homes have these boys with pilfering propensities? How have *their* parents neglected to provide them with ripe fruits essential to their health? and what bitter fruits are they likely to reap in the future? On the contrary the boys who have ample orchards to help trim, graft and care for,—rightful liberty to watch for the first developing buds and flowers, for there are no fruits without flowers,—to listen to the hum of the industrious bee gathering honey for their use,—to observe the maturing of the early fruit and feast thereon to satiety—will not only have no temptation to steal, but they will not know what it is to be covetous, and they will gladly give to those of their fellows who have none, and so cultivate a character for hospitality, that should be encouraged.

The chief difficulty in the matter of trees, whether fruit or ornamental, is their scarcity. In this city of twelve thousand inhabitants there is not a semblance of a nursery, nor is there any of consequence in this part of the county. No better opening for this business could probably be found in the country. Individuals, therefore, who will have them, are often obliged to send to Boston and vicinity, not only for fruits, but for the trees themselves. And more than this, it is well known that the Cross pear, an excellent winter variety, originated in this city—the parent tree being almost within a stone's throw of where we now stand. In vain we searched the country round for this variety and were finally obliged to send to France to obtain it, and actually imported some half dozen, now growing in our grounds. Enterprising nurserymen abroad keep an eye on all new kinds of valuable fruits and flowers, procure and propagate them, hybridize and raise from seed, and where labor is cheap, can afford them at less cost, in quantities, than if grown here.

In this connection we take the liberty to say—not to parade any thing we have done, but for the benefit of poor beginners like us, who would have a home however homely, and are willing to begin at the beginning with the young saplings—that in the spring of 1853 we imported, among other things, one thousand seedling Norway spruces, without exception the most valuable evergreen tree in the world, for New England climate, at an expense of less than ten dollars, or less than one cent apiece. After three years' growth these were transplanted, making six hundred feet of garden hedge, and surrounding a field of six acres, at suitable distances for an ornamental screen. Hundreds of dollars would not purchase the lot of trees, only about two per cent. of the whole number having been lost.

It is, however, no part of this address to attempt to point out which of the vast variety of trees and fruits should be selected, or how to be obtained and planted; all this would be tedious and lengthy. Books and periodicals abound with advice, some of which is good, and professed gardeners are abroad, who may be of service; but every improver must think and act for himself. His own good sense, observation, skill and general experience must be his guide. Labor and expense will, of course, attend the operations of improving and planting, and here are met the great objections of the farmer.

It is a very common idea that agriculturists are a hard-working, constantly employed class of people. This has not been our observation. There are often periods, at the gathering of important crops, when he is obliged to be wide awake; but he generally takes things leisurely. He is called the most independent man among us. The logy gate of his horse as he comes to town, or the slow manner in which he converses, is an index of the moderate pace at which every thing progresses at home, on the farm. Not only so, but he is not a close calculator, or economizer of time. Were the hours condensed in which he actually labors to advantage, even at a slow rate, they would seldom average more than the ten hour system. There are many exceptions to this among those who are bound to be rich and to excel in improvements, or who have other employments to occupy a portion of their time.

Individuals engaged in manufacturing or mechanical pursuits, are generally at work earlier, take less time at meals, and move more rapidly to and fro. Let the farmer only decide to take hold of the few modifications we have suggested and he will assuredly find time to attend to them by degrees, and they will serve to stimulate him to greater activity—increased enjoyment and more self-respect. He will cease complaining at his lot—himself and family will be more industrious, contented and happy. Employment of some kind, being essential to happiness, the home-loving and home-improving may here find enough for their health and amusement.

We admit, however, there is with the farmer one insurmountable obstacle to any great improvement of his premises or condition, without a fundamental change. We are not alone in the opinion that the majority of farmers own too much land for the most successful and profitable cultivation, and yet there is much truth and pith in the remark, that they would add thereto, all the land that adjoins them. The wisdom of the Grecian law which "forbade that men should purchase as much land as they desired," may not be doubted; but the right to legislate thus, not being admitted in this country of sovereigns, we must resort to agricultural *suasion.* Our advice then is for farmers with large farms to sell off portions and apply the proceeds to a higher culture of the remainder. They will then have less toil, more income and satisfaction.

Or if a family are grown up, and the father would have his sons remain near himself, let him set off to each a portion of his unwieldy territory, as distinct farms. Do all that his means will justify to establish them permanently; relinquish his pecuniary right and his paternal right of control in the management of the new farms, to the young men, according to their character and the confidence that may be placed in them.

The head of the family should not impoverish himself, even for his children, but in thus giving to them—of his abundance it may be—while he yet lives to see the use made of it, he feels amply rewarded by the gratitude expressed, and the homes early established and made happy by his munificent duty. This course is far more commendable, than the selfishness of retaining one's property till he can keep it no longer, exemplified in that most obnoxious feature of home management known as "taking care of the old folks." Those of the latter who are of this class, while yet in the prime of life, have frequent conversations with their boys on this subject, and when one is found willing to accede to their wishes and demands, he is thenceforth the favorite, and the brothers are allowed to leave the parental roof, often with little or nothing with which to commence life, but a priceless independence; a condition infinitely to be preferred to that of the apparently favored one, who is frequently reminded —as a matter of great merit—that the house and lands are finally to be his.

AGRICULTURAL HEART-WORK.

From an Address before the Middlesex Agricultural Society, Sept. 29, 1857.

BY CHARLES BABBIDGE.

It is not sufficient that we have an intellectual perception of a truth. We must feel a personal and earnest interest in that truth; otherwise, it affects us as little as the mirror is affected by the object it reflects. We know many things—that they are true, important, and of pressing necessity, and yet they exert little or no practical influence over us. We know that there are many duties which we owe to ourselves, the community in which we live, the country of which we are citizens, the race in whose welfare we have a common interest. But it is not mere knowledge, which makes either the faithful parent, the unflinching patriot, or the devoted philanthropist. Neither will knowledge make a good farmer. He cannot be a good farmer without it. And this brings me to my first position. I should have said point, only I might have forgotten myself, and supposed I was preparing a sermon. I assume that the progress which has been made in agricultural science, has a tendency to discourage, rather than encourage agricultural labor. The farmer's son, hoping not merely to make his toil a little more dignified, but also a little more profitable, proceeds to post himself up in the philosophy of the thing. He reads Liebig and Johnston, and many others, not forgetting our own Dana. He becomes learned in the nature of soils, their constitutional elements in the processes of vegetation, their exhaustive tendencies and results, and he finds as the sum total of the whole matter, that in order to keep up the productiveness of the old farm, he has got to work like a galley slave; otherwise, the whole concern goes by the board. It is work, work, work, morning, noon and night, year in, and year out—

to-day in a mud hole, and to-morrow in a manure heap. His waking hours are crowded with toil and perplexities, and even in his sleep an everlasting pile of compost lies like a mountain upon his breast. No wonder that farmers' sons flee from the old homestead as if it were the city of the plague, and that farmers' daughters think, that to marry a farmer, is almost as bad as not to marry at all. It is said that no one would go to sea, if he knew beforehand the hardships of sea-life. When less was known about farming, the boys staid at home. Now, they know too much to do any such thing.

In yet another way, has the increase of knowledge in connection with husbandry, operated to its disadvantage. No business, mechanical, mercantile—and I had almost said, professional—furnishes such facilities for varied knowledge when knowledge becomes a collateral pursuit, as the business of the farmer. There is nothing in or of the earth, or the atmosphere, nothing relating to fire or water, nothing in the whole circuit of chemical science that does not in some way concern him. He likewise is deeply interested in the politics of the whole world. For a war here, or a numerous emigration there, affects the prices of his products, and he must be prepared to avail himself of a rising market. This extensive information upon subjects so diverse, is essential to the farmer's success and prosperity. But will he who has made even respectable progress in the acquisition of this knowledge, be likely to remain with the toilsome life and slow and scanty returns of the farm, and this, when as a trader, a teacher, a lawyer, a doctor, or a minister, he can enjoy—as he regards it—a more dignified, as well as lucrative position? No one will hesitate about the fact, in this matter, or if he does, let him visit half the farm-houses in Middlesex County and he will hesitate no longer. But I need not labor the position, that knowledge of itself, will not make a good farmer. If it were possible to make that knowledge "perfect, wanting nothing," then it would. Perfect knowledge implies perfection of every kind, because we have reason to believe that the Almighty has established such relations and dependencies, such laws and agencies, that a perfect knowledge of them on the part of man, would insure man's moral perfection, for the reason that disobedience would be a moral impossibility. But agricultural knowledge,—increase it though you should, to the utmost extent of your ability,—will still be very imperfect; and the young farmer, blinded by his little knowledge, to the real advantages of his situation, will not be satisfied till he goes to seek his fortune, whether he find it or not.

It is not knowledge, then, that constitutes the first great want of the farmer. It is the spirit of content. It is the love of his occupation. It is an intelligent respect for his position and calling among men. And in order to these, there is needed heart-work; that kind of culture which a man carries on in his own bosom; that transformation of his nature whereby he "grows in grace;" that development of thought, feeling, energy and zeal which continually approximates the perfect man. I do not say that the farmer has any special need of these things; that a stronger necessity lies upon him than upon other men. These things are the prerequisites of success to any and every man, whatever may be his calling. It is because all men need them, that the farmer needs them, and for that reason alone. In one of the novels of Walter Scott—I think it is Red Gauntlet—David Latimer, a young gentleman, one of the heroes of the tale, encounters Wandering Willie, a blind fiddler, with whom he has a playful trial of skill in fiddling. The young man executes his scientific flourishes with all the skill of a Paganini, slipping, with flying fingers, from one end of the finger-board to the other, and bringing out the tones in a manner that he supposed would astonish his rival. Wandering Willie, in his turn, takes the instrument, and goes through with a very exact, but very laughable imitation of the other's performance. At length the old man stopped of his own accord, and as he had sufficiently rebuked the other, by his mimicry, said in his broad Scottish accent, "But for a' that, ye'll play very weel, wi' a little practice, and some gude teaching. But ye maun learn to throw the heart into it, man, to put the heart into it." In this one particular, at least, farming and fiddling stand upon common ground. In order to success in either, the heart must be thrown into the work. What men do reluctantly, they never do well. Slave labor, especially in husbandry, never reaches any but slovenly results; and a man, who while he cultivates his farm, hates his occupation, is just as much a slave in Middlesex County, as he would be in the cotton fields of the South.

The question then becomes one of great practical importance. Is the occupation of the farmer worthy of respect, and has it intrinsic merits that can secure to it the love and attachment of a sensible and industrious man? Pardon me if I become prosy in the discussion of this point. The question I suggest, has got to be deliberately settled. It has two sides to it. Husbandry has long been the theme of the poet. From the days of Theocritus, to the present hour, it has been very pleasant "to babble of green fields," and pastorals are very pretty, as they come to us from Virgil and Gay. But some things which are quite delightful in the abstract, are quite otherwise, when reduced to actual experience. The dignity of labor is a grand theme for a sermon, or a cattle show address; but upon actual experiment, the dignity becomes very small, and the labor very great. Most of us have seen Mr. Shanghai's experiments in farming, in a recent number of Harper's Magazine, and verily, the joke of the thing is a very near approach to the truth. It is a not uncommon remark, that when a man is proved to be fit for nothing else he can become a farmer. Of course, the first thing to be done, to dispossess the community of this idea, is to show the inherent advantages, the pleasures, and the profit of intelligent husbandry. But this is what I shall not attempt at this time; on the contrary, I shall take it as a fact conceded, by an audience like this before me. On a certain occasion, an inexperienced lawyer, in addressing the court, became exceedingly tiresome, by going into unnecessary details, and was at last stopped with the quiet remark from the bench, that he must be willing to take it for granted that the judge of the supreme court, knew something of law. It is a matter of more immediate interest, to determine how this dread and distaste of agricultural life and labor is to be done away. In this matter, as in most other reforms, a beginning must be made at home. There is altogether too much complaint in the household, about hard work and hard times. The parents start the mournful music, and the children stand ready to join in the chorus. Now there is no denying, that there is hard work, and enough of it, in every farmer's family. It is of no use to wink this fact out of sight, or to think it can be otherwise. It is of no use to try to persuade people that they are mistaken in the matter. You must not undertake to deal with the members of a farmer's household, as we sometimes deal with whimsical children, telling them that they are not sick, and will be better by and by. Farmers, male and female, must work, and must make up their minds to it. And to do it cheerfully, they must have their attention directed to the advantages and blessings of their particular calling in life. The labor that wearies them, prepares them to enjoy the rest that refreshes them. They earn their bread with the sweat of their brow; but they gain also the healthy appetite that luxury always wants. They are free from those cares and anxieties which are inseparable from the life of the mechanic, the trader and the professional man. You can distress those who are engaged in these pursuits, but you cannot pinch or starve the farmer. Work may fail the mechanic —trade may take new channels, and the merchant may be left high and dry—a distressingly healthy time may come, and the physician's drugs be left to grow mouldy—the lawyer may find that there is no fight in his neighbors, nor fees in his pocket, and the clergyman, most to be pitied of all, finds that " a vicarious sacrifice " must be made, whether it forms a part of his theology or not. But the farmer may quote St. Paul's words, with all St. Paul's self-reliance: " I say none of these things move me." Nor is it a dogged animal resistance that the farmer makes to these common afflictions that flesh is heir to. It need not be in insensibility to suffering, that he finds his ease and comfort. His position and calling open to him the most direct avenues to the intellectual and spiritual development of himself, and the education of his family. The mechanic must spend the entire day in the midst of his tools and his journeymen. Trade and commerce require the undivided application of a man's energies, for as great a length of time as nature can endure; and the professional man can only incidentally do any thing for the cultivation of his own higher tastes and the instruction of his children. And so of the farmer; there are times and seasons when he too must labor from " early morn to dewy eve." But this excessive application is only periodical, and is followed by intervals of comparative leisure, when social pleasures may be enjoyed and domestic duties be leisurely performed. And in this connection, let it be remembered, that the appliances or apparatus that are convenient in teaching the higher branches of education, the principles of artistic taste, of æsthetic science and art, are in an eminent degree, at the command of the farmer. Who of us has not envied the lot of the lazzaroni at Rome, who in spite of their poverty, can, some of them at least, look daily upon the glories of the eternal city; can enter the courts of St. Peter's and admire its almost divine majesty; can gaze upon the paintings and statuary of the Vatican, till they forget, in the ecstacy of their souls, the hunger that gnaws their bodies. But why envy them; at least, why should the farmer envy them? What is the dome of St. Peter's, compared with that which every night overhangs his own farm? What temple compares with that which the Almighty has reared, seemingly to enwrap his own beautiful nest; where his loved ones lie? What is it to tread the marble pavement, and feel himself a pigmy beneath the ceiling which human hands have reared, and a mere atom in the moving crowd around him, when he may stand beneath the outspread firmament with all its glittering stars, and feel that the ground he stands on is his, his own, precious in his own eyes, as associated with all his labors and joys, and not disregarded of God, whose rain and sunshine descend continually upon it.

Painting is a glorious art. An ability to appreciate its beauties, is a great acquisition. But who enjoys such advantages for the development of a taste for this art, as the farmer? In a certain sense, his whole life is spent in a picture gallery. The most beautiful subjects are continually before his eyes. What sunsets, suggestive of the decline of his own peaceful life. What sunrises, telling him of a newly invigorated existence after the night of death is passed. Every hour presents a new landscape, a new study of color, of light, of shade, of grouping, of tone. Every tree, every rock, is found to possess its own peculiar beauty, and the fund of enjoyment is found to be inexhaustible. So of statuary. I am serious, when I say, that we may discover the elements of a divine beauty in the stately form and tread of the ox, as plainly as in the proportions of the Apollo Belvidere. The Venus de Medici is beautiful; so is a cow. The Laocoon affords a startling display of muscular effort and power; so does a well-trained pair of cattle. Niobe in tears awakens our sympathy; so does a hen, fluttering about in a frenzy, because a hawk has swept away her little ones. As studies in moral science, these subjects may be all reckoned in the same category. As to music—that finest of the fine arts—a rural home will always offer great facilities for its cultivation. The boy begins his essays on his trumpet made from the tube of a pumpkin leaf; and the daughter need not despair, till she has mastered the sonatas of Haydn. "We speak that we do know, and testify that we have seen." Two or three years since, Mr. President, I had the honor of being a member of the Committee on Farms, of this society, and therefore with my associates, enjoyed some special opportunities of seeing the families as well as farms of this county. I could point you to towns, in which the progress of the inhabitants in all that constitutes refined life, would furnish ample illustrations and proofs of all that I have asserted.

These are only a few of the facts that need to be universally known and appreciated. As they become more extensively known and applied, agricultural life will assume a new attractiveness, and agricultural labor become more and more pleasant and profitable. And there is much to encourage in us the belief, that this is the tendency of things, among farmers at the present time. The education of the children of Massachusetts is becoming more and more thorough and practical; it is covering a broader space; it embraces a continually widening range of subjects; and more than all, it is under the superintendence of practical men, who know what life is, and what it requires. Our State Board of Education may be made the instrument of incalculable good in this respect.

Again, I find a ground of hope in what is sometimes regarded as an omen unfavorable to the agricultural prosperity of Massachusetts. It is said despondingly, that the young men leave the farming towns and flock to the great centres of business, and that ere long our farms will all be in the possession of foreigners, because they alone will be willing to undertake the labor of carrying them on. This will not happen in your day or mine, Mr. President. I say, let the boys go. I am glad they have the enterprise to go. What is there to keep them at home? Their fathers have hitherto had their "day of small things." They have been obliged to live from hand to mouth; consequently the farm has been, and in most cases now looks, like a hard-worked horse. Its soil is impoverished, its walls are fallen down, the house wants paint, and the barn wants every thing. And still, go where you will, you see signs of improvement in all these particulars. There is somebody at home yet. As you go about our county you will find new and beautifully constructed walls, formed out of the old materials, new barns, or old ones split in halves, always standing apart just twelve feet, and covered in with new materials. You will find new dwellings of every size, from the pretty cottage, to the magnificent villa, all of them proclaiming the efficacy and worth of our agricultural press. And how happens this? Partly because some of the boys staid at home, and partly because some of them didn't. The wealth acquired by farmers' sons in the cities, has been piously, as well as wisely, devoted to improvements upon the old and loved homestead. And this process will go on; and I look with hope to the day, when the migration which now sets in the direction of cities, shall send a refluent wave back upon the country.

A city experience, in cases innumerable, prepares a man for a happy and useful life in the country. Mammon is not omnipotent; and many a man learns experimentally, that after all, the joys of a country life are the most solid and enduring. Especially may this fact be learned and appreciated, amid the perplexity that now reigns throughout the world of finance. The profits of agriculture, too, are beginning to be better understood. There are popular fallacies on this subject, which I should like to expose, but cannot now. But let two men start together in life, one with a view to agricultural and the other to mechanical or professional pursuits; let them practice the ordinary discretion of sensible men, and the ultimate success of the farmer is more sure than that of the other. Look at the condition of those men when they shall have reached the age of fifty years, and my life for it, there will be no cause for complaint on the part of the farmer. I bethink me of many who started with me in life; some of them beguiled with the hope of commercial prosperity, some dazzled with professional renown to be acquired, and others content to work that mine of wealth that lies within twelve inches of the surface of a farm. Of my early acquaintances, many lie buried in the ocean; others, worn out with fruitless toils, and discouraged by repeated failures, live, and that is all; worse than this, I have seen those upon whom God had bestowed every desirable gift, yield to the temptations that early success brought with it, and then go down, covered with disgrace, to untimely graves. In my own profession, I have seen noble hearts tried beyond their power of endurance, by the coldness and wickedness of an unfeeling world, and left at last, to find their only solace in the hope of a better life beyond the grave. I have seen others, with a wisdom beyond their years, meet with a determined front, the toils and trials of agricultural life, and the event has shown the wisdom of their choice. Surrounded with the peace and plenty of their own honestly-acquired domains, seeing every where the results of their own well-directed labors, resting from their toils beneath the trees of their own planting, they are waiting patiently and hopefully for the sunset of life.

"How blest is he, who crowns, in shades like these,
A youth of labor, with an age of ease;
Who quits a world where strong temptations try,
And since 'tis hard to combat, learns to fly.
He onward moves, to meet his latter end,
Angels around, befriending virtue's friend;
Sinks to the grave, with unperceived decay,
While resignation gently slopes the way;
And all his prospects brightning to the last,
His heaven commences ere the world be past."

ARTICLES OF FOOD.

From an Address before the Middlesex North Agricultural Society, Sept. 16, 1857.

BY E. F. SHERMAN.

The comparative value of animal and vegetable food has been a frequent source of discussion and contention. Men who have contended for an exclusively vegetable diet, have been, in general, men of weak stomachs, if not of weak heads; dyspeptics and grumblers, who, having suffered long from sour stomachs, have become soured throughout. But they have in vain attempted to support their theories against the deductions of the anatomist, the natural instincts and appetites of man, every where, and the divine permission to "slay and eat." Either an exclusively vegetable or animal diet is capable of sustaining life, but the most perfect development, physical and intellectual, has always existed where sustenance has been derived from both sources.

It is hardly possible to name any thing belonging to the animal or the vegetable kingdom, not absolutely poisonous, which has not at some time been eaten; nor can any animal be named, the use of which, as food, has not at some time, and by some national religion or habit, been prohibited. We are sickened when we consider what gross and loathsome articles are considered delicacies by those who, could they to-day have come to these tables, would not have found one thing here, in their judgment, fit to be eaten. Truly, one-half of the world knows not how the other half lives. What is one man's meat is another's poison. In nothing are the inconsistencies of our race so strikingly exhibited as in national and individual habits and prejudices respecting food.

A slight consideration of our own peculiarities, individual and national, with regard to diet, will lead us to be charitable towards others. Every one regards certain dishes with particular favor. His peculiar tastes will control his habits. He may find it impossible to overcome an aversion for some particular kind of food, in general use, and set before him daily at table. One prefers the hot, another the cold; one requires every dish to be high seasoned, and makes use abundantly of pickles, mustard, pepper and spices, while another can hardly endure a pinch of salt in his porridge. One chooses the very rare, another the well done. "Jack Sprat could eat no fat, his wife could eat no lean." It sometimes happens that a new variety of food is introduced, at first disliked,—like the tomato, for instance,—but which, in time, grows into universal favor. Our educated tastes approve that which was at first repulsive.

Shell fish were strictly forbidden to the Jews. We are somewhat particular in our choice. The lobster is a decided favorite—so extensively eaten that its fishery has become an important branch of industry in the State. But the lobster is the scavenger of the seas, and in itself is as unsightly and repulsive as muscles, cockles, periwinkles, limpets, wilks and snails, consumed by other nations. Nor are we agreed as to all the parts of the lobster. To many, the soft, green fat is the choicest portion, while others will lose their appetite in disgust at the sight of it. The oyster was esteemed as a delicacy by the Romans, as it has been, in general, since, by all people who could obtain it, possessing more than any thing else the character of a holiday food. But surely it requires considerable courage to swallow for the first time the slimy lump of inert matter; as much, if we could lay aside all habit and associations, as to eat grasshoppers, lizards and locusts, esteemed by other nations. The crawling, leggy, spider-like red crab that inhabits the oyster, is a choice morsel with many of us, but the decided aversion of others.

Formerly, there was no mode of expressing utter contempt for the French, like that of calling them frog eaters. But they have continued to eat their favorite delicacy, regardless of the disgust of others, till frogs have grown into decided favor; they are now served up in the fashionable eating houses of some of our cities, and our gourmands are beginning to prize the luxury.

The turtle is declared by aldermanic epicures to be the "sovereign of savoriness"—a starved one, it has been said, "being infinitely better than a fatted animal of any other species." Some among us, who fancy themselves good livers, have lately discovered that the snapping species of our swamps and mud holes, though not quite equal to the green turtle and the terrapin, is yet a rich delicacy.

The wealthy Chinese indulge immoderately in refinements of cookery and the pleasures of the table—their most esteemed delicacies are shark's fins, bird's nest soups, little running crabs that they have to chase over the table, cold relishes of salted earth-worms, moths and grubs, and a variety of soups, seasoned with filthy compounds of a strong and villanous smell. Dogs, cats and rats, are also with them in high esteem as food. But we must bear in mind that Kane and his men found rats a most agreeable and dearly prized luxury, and we have other high American authority for eating dog.

Blood was forbidden to the Jews, and special pains required to abstract it from the meat. "Roast beef, very rare, and blood gravy," is a frequent order for dinner at our hotels. Hog's blood is a principal ingredient in certain foreign sausages, called, sometimes, black puddings, and imported as a luxury into this country. *Garum*, a highly prized Roman delicacy, was a pickle of fishes' blood and gills. The remotest parts of the then known world were visited, and air, earth and ocean ransacked to furnish the complicated delicacies of a Roman supper. A large part of those delicacies would be repulsive to us—yet an old law forbade them to eat poultry. Some people have refused the duck and goose, to feed on birds of prey. Sugar, generally tempting to children, is refused by the young Esquimaux with disgust, but he will gorge himself on whale blubber and train oil. The Zetlanders and some other fish-eating tribes, will not eat their fish when fresh, but keep them till, what others would consider a most intolerable stench, they, a most agreeable odor, proclaims them to be sufficiently tender and putrid. Assafœtida is a highly esteemed condiment among some nations of the East, food highly impregnated with it being regarded as fit for the gods. Our government has just introduced this plant into this country, not however, it is to be hoped, with any view of bringing it into general use as a seasoning. Roast elephant,—probably not often a barbecue,—and lion and tiger steaks, afford the favorite repast to the successful African hunter; while the South American Indian regards a boiled monkey as the most tempting of all dishes.

The flesh of domesticated animals must always be a dearer aliment than vegetables; the same land required to supply food to the animal, yielding much more than its alimentary equivalent in vegetable products. In England, in the seventeenth century, not more than one-half of the families had ever tasted meat, and a large part of the remaining half only had it as an occasional luxury. Of the vast population of China, few ever obtain it.

The amount of meat eaten by the laboring classes, in any nation, affords one of the best modes of judging of their comparative comfort and well-being. As wages advance, and wealth becomes distributed, the ameliorated condition is seen in an improved diet. Much as we revere the customs of our fathers, we would hardly be willing to exchange our food for theirs. Bean and pease porridge, corn and rye bread, baked beans and hasty pudding and milk are as readily supplied to our tables as to theirs. But the addition of more meat, of wheat bread, and the other delicate preparations of wheat, of choicer fruits, and vegetables in greater variety, render our tables more inviting, and probably, not less healthful than theirs.

A late number of a British agricultural journal asserts that, "in no country is the proportionate consumption of bread, butter, tea, sugar and meat so large as in Great Britain; and that in the domestic homes of the laborer, there is to be found a degree of comfort and competency, of wholesome food, and that of a quality best suited to maintain bodily health and vigor, which is looked for in vain elsewhere." This is a broad rather than a bold assertion, for it requires no courage to boast. Of the inhabitants of Great Britain, the Irish subsist almost entirely upon potatoes. Oatmeal is a principal food of the Scotch. Our Patent Office Reports assert that in no country is so much meat eaten by the laboring people as in the United States. And, gathering results from a variety of sources, I have no doubt of the truth of this assertion, although a comparison is instituted, not with the whole of Great Britain, but with England only. The economical system of starving has never been introduced into our prison and pauper establishments. Our agricultural laborers, the residents of our cities, and our factory operatives, live better than the same classes in England. They eat more meat; their variety of vegetables is greater. With almost our entire population, meat or fish constitutes a chief part of at least one meal a day, and is eaten twice in perhaps half of the whole number of families. And it is eaten in substantial pieces; not in thin soups, where only occasional bits may be fished up from capacious floods of diluted liquor.

If a comparison is instituted between our country and the continent of Europe, it is even more to our advantage.

It is alleged against us that we are far behind the rest of the civilized world in our cookery; that bad cookery is universal with us; that we misuse the bounties of Providence; are wasteful and extravagant, losing a great part of the nutritive qualities of our edibles by a wretched system of preparing them for the table; and that from our gross tastes, perverted by an habitual system of bad cookery, we never experience the true zest and keen enjoyment that good food, skilfully cooked, should give. At one of our county agricultural fairs, it was said by one of the speakers that though the farmers in our State lived well, they almost universally had poor bread.

The charges which have of late become common against us for bad cookery are, for the most part, made by persons to whom a sedentary life has given tender stomachs and poor digestion, or who have indulged themselves in the refined delicacies and artful sophistications of a foreign style of cooking, until all true relish for food, in an undisguised state, is lost. I venture to assert that the farmers of our State, in general, eat good bread. True, the hot biscuit, baked in the cook-stove, and indebted for its sponginess to the hasty action of chemical ingredients, is far inferior to the loaf of raised bread of the weekly baking in the brick oven. But the good old-fashioned farmers' bread continues in general use—the wholesome, palatable, rye and Indian home-made brown bread—the truly national bread of our country, and not found elsewhere.

It is undeniable that the Europeans understand the art of cheap living better than we. We practice far less economy in the use of food. Not only do they eat less meat than we, but their common mode of cooking saves much that, with us, is refuse. During the French Revolution, the subject of cheap sustenance for the army, attracted the attention of scientific men of France, and a most exaggerated opinion prevailed regarding soups made from bones. The reports of scientific men went so far as to assert that *weight for weight*, a soup from bones, possessed a greater nutritive quality than if made from meat. A French cook book will give receipts for a hundred or more kinds of soups; a large part of the mock kind, where a skilful use of condiments, and an artful combination of cheap vegetables so disguises the compound that, although you may guess what it tastes like, you cannot possibly tell what it is composed of. It is, however, safe to assume that a large part of these artfully disguised, savory messes, are as free from meat as the cheap broth with which the miser was wont to feed his servant, being the water, slightly salted, in which his own egg had been boiled. It is true, we are somewhat wasteful, and might use greater economy; but we claim for our old-fashioned dishes this advantage, that we know what we are eating; and that if we are unskilled in condiments, sauces, and artificial relishes, a wholesome diet leaves to us hunger—a sauce for which no art can find a substitute or equal.

Of all animal food, beef holds the first rank. Yet its use is forbidden by the Budhist religion; and by the Chinese, even the wealthy classes, it is seldom eaten. And they have no milk, butter, or cheese. This, like almost every thing which concerns that people, is remarkable, as agriculture is, in China, in an advanced state—and the beef cattle of any locality are generally regarded as one of the surest tests of the condition of agriculture.

Mutton holds a place next to beef, in the opinion of those who have made dietetics a study. But mutton is by no means in universal favor as food. There is, perhaps, no kind of food regarding which, individual tastes are so much at variance. In this country, sheep culture has been pursued principally for clothing. A strong prejudice prevails among many against its use as food, the carcasses having been thrown away, heretofore, in large numbers. Its culture for food is, however, on the increase in many parts of our country.

But swine have been the occasion of the most violent national prejudice. Wherever pork has been eaten at all, its use has been extensive. In the early ages of civilization, it has generally afforded the principal animal food to the race; its great ease of production giving it irresistible advantages.

Pork is an abomination to the Mahometans, and to the Jews. The inventory of the live stock of the great farmer, Job, shows him to have been possessed of seven thousand sheep, three thousand camels, five hundred yoke of oxen, and five hundred she asses, but no swine. Yet, in a later day, we find that a herd of two thousand swine were feeding upon a Jewish mountain, the Jews having no objection to fatten them for the Roman soldiery and other Gentiles—willing to buy and sell the unclean animal, but unwilling to smell pork at the table.

Probably pork is now nowhere more extensively eaten than in the United States. To the slaves of the South, it forms, with corn meal, the chief article of food. It is the great staple of western consumption. It is extensively used in most families in the middle and north-eastern States. Its fat serves for cooking purposes in almost every kitchen.

But a most decided opposition has been growing up against its use. The hog is ever doomed to have enemies. As men grow more luxurious and particular, *he* degenerates in his habits, living more upon offal and refuse. Incipient dyspeptics will find their stomachs show the first symptoms of rebellion after a hearty dinner of roast spare-rib. But, notwithstanding all objections, pork, honestly raised, and coming to an honest death, and free from the poison of distilleries, will be regarded as a nutritious and healthy food by men whose stomachs are not their masters. Pork will ever hold its place as an esteemed aliment by men to whom out-of-door life, healthy employments and easy consciences give good digestion.

Horse flesh has been at different periods used as food; most frequently from necessity, but by some nations from choice. In general, the feelings of the civilized world have revolted at its use. In France, labored efforts have been lately made to overcome what are affirmed to be the foolish prejudices of the people, regarding its use as food. It is claimed that the horse is herbiverous, of cleanly habits, that the flesh is rich in nitrogen and highly agreeable to the taste; that even old horse is free from taint and makes an excellent soup, and that roast horse flesh cannot be told from roast beef. This latter assertion, taken from a French report by a leading paper in this country, has been extensively circulated. We may admit that horse soups, and horse stews, and all the made dishes for which French cookery is famous, may be agreeable, and disguised, as they are, may be pronounced good as beef. But that, when the natural juice and flavor is preserved, as in a roast, it cannot be distinguished from beef, is an assertion that no reports of French savans can render credible; they must tell it to the horse marines—we should be asses to believe it. However, it may be, that from France, whence come so many edicts of fashion and science, will come the law to eat horse meat, and that it will yet be seen on our butcher stalls, side by side, with beef and mutton. Then at least the horse show in an agricultural society's exhibition will be legitimate and unobjectionable.

Wild animals have ever afforded an important aliment and an esteemed luxury. Every variety have been eaten, the carniverous as well as the herbiverous; yet with that strange perversity of prejudice that has always existed with respect to food, every race of hunters has arbitrarily excluded some kinds as unfit for food.

Our indignation is aroused when we consider the misery and degradation imposed upon agricultural laborers in past ages by the passion for the chase. A simple desire to procure the animals for food has by no means been the principal incitements to the wrongs and oppressions heaped upon the tillers of the soil. The cruelties and exactions of the game laws have equalled any other slavery that has ever existed. In France, at the commencement of the Revolution, the game laws fettered the most important operations of agriculture. The most destructive animals, wild boars, and herds of deer, were allowed to range unobstructed, to fatten upon the growing crops. Mowing, hoeing and weeding were prohibited, lest some species of birds or the eggs, should be destroyed; and using certain kinds of manure was forbidden, lest the flavor of some delicate species of game should be injured.

Fish, have in every age afforded an abundant supply of food. To the Jews they were in part prohibited, and other nations have at times rejected them. It is a singular fact, that in England, not long after the Reformation, and while all usages of the Romanists were held in abhorrence, it was found necessary to enact laws to induce a return to this economical food, and meat was strictly forbidden upon two days of the week, and upon all other fish days of the Popish calendar.

Fish have generally been the cheapest of animal food. Most species multiply in a ratio far exceeding any thing known in agriculture. Our attention has been of late directed to the artificial propagation of fish. Abundant success in France, and considerable success in this State, and other parts of our country, allow us to anticipate a considerable supply. The farmers of Middlesex North have been deprived of the shad and alewives of the Merrimack, and in spite of legislation and artificial propagation, it is altogether probable that we shall never again have river fish for our tables, and manufacturing towns for our markets. But corporation dominion extends not to the sea. There are as many and as good fish there as ever were caught, and increased quickness of transportation gives us an easy supply.

The vegetable kingdom affords, by far, the greatest variety of alimentary products. The actual number would be stated in thousands; a small part only, is known to us.

The attention of farmers is, at the present time, more than ever before, directed to new products of the soil, and new varieties of those with which we are familiar. We are indebted to government for the adoption of a liberal and extensive system, for the introduction and dissemination of new plants and seeds; but we are even more indebted to individual exertion, and a universal spirit of progress and enterprise among agriculturists to carry out this object.

The present extent of the culture of the Chinese sugar cane in this country, is a wonderful and instructive fact; it is but about eight years since a few seeds were first introduced, yet during the present year one hundred thousand acres have, it is estimated, been devoted to its culture. It does not belong to my subject to speak of it, as it is not used for food by human beings. I refer to it only as exhibiting the wonderful rapidity with which information regarding agricultural subjects is disseminated, and the general intelligence and earnest enterprise, among farmers throughout our country.

The attention of agriculturists in the United States, and in Europe, has been of late, directed particularly to the productions of Asia. In China, agriculture is in an advanced state, and it is far more sensible to look there for information, than to tropical countries.

Time suffices for but a brief mention of some of the more important vegetable aliments.

Our government has just introduced the sweet, edible variety of the acorn into this country. Any poetic dreamers who are captivated by the glowing descriptions of the primitive simplicity and virtue of the acorn eaters of ancient times, may indulge their imaginations in visions of a millenium return to this food, when the vanities and evils of the luxuries of civilization shall be no longer known. But those oaks, to be planted by the prudence of our fostering government, won't bear acorns in our day, and we will submit to the hardship, and try and be content with other fare.

Of all spontaneous, or nearly spontaneous productions, the banana, or plantain, feeds by far the greatest numbers of the race. This delicious fruit offers itself to the inhabitants of equinoctial Asia, America, and tropical Africa, and of the Islands of the Atlantic and Pacific, wherever the mean temperature exceeds seventy-five degrees. To an immense number of human beings, it is all that wheat, maize, rye and potatoes are to us,—what rice is to the countries of the East. It multiplies, with but slight cultivation, beyond that of any known vegetable. Humboldt says its increase is, as to that of wheat, as one hundred and thirty-three to one. Herndon and Gibbon, in the report of their exploring expedition through the valley of the Amazon, say that the natives eat the fruit raw, roasted, boiled, baked and fried; that they are perfectly satisfied with it, and having no want beyond it, nothing to stimulate to labor or activity, seem doomed to hopeless indigence and barbarism.

The bread-fruit tree is one of the most interesting plants. Soon after the voyages of Captain Cook, the most extravagant ideas of its importance prevailed in England. The unfortunate expedition of the Bounty—undertaken by the English government to transplant the tree from the Society Islands to the West Indies, the mutiny, and the subsequent fortunes of Captain Bligh, and eighteen who were sent adrift, and of the mutineers who remained—affords one of the most interesting and entertaining narratives in our language. As an agricultural production, the bread-fruit has been overestimated. Byron says of it:—

> "The bread-tree, which, without the ploughshare yields
> The unreaped harvests of unfurrowed fields;
> And bakes its unadulterated loaves
> Without a furnace, in unpurchased groves,
> And flings off famine from its fertile breast,
> A priceless market for the gathering guest."

The date, or palm tree, has been the object of veneration with the Jew, the Christian and the Mahometan. With the fig and the olive, it has lately been introduced into the United States. But it seems too much to expect that these ancient fruits will flourish here. Their associations are connected with the past, and with countries famous in history, long before the era of the Roman dominion.

There are many species of vegetables extensively used as food by inhabitants of northern countries, of a far different nature from the noble fruits of the East. The Moors, Negroes and Hottentots, eat gum; some tribes make a sort of bread from the inner bark of trees; sea weed furnishes to many a common article of cheap food; many derive a considerable part of their daily subsistance from different species of ferns, and lichens, and fungi, or mushrooms, are used extensively as food in Russia and some other places; and these slightly nourishing species of vegetables are in use, not as an occasional resort in famine, but as the daily refuge of poverty and stay of hunger of large numbers of the human race.

Of all cultivated plants, rice affords alimentary support to the greatest number of men. Unlike the other grains, wherever it grows, it becomes the food of the working classes, to the almost utter exclusion of other vegetable products.

It is interesting to trace the changes in the cultivation of barley, oats, rye, millet, and other ancient grains. No one of them has ever been a general aliment of the race, yet at different periods, and in limited localities, each of these cereals has served as food to an important extent. Barley cakes are a common food in some parts of Europe. Oatmeal is a common and healthy food with the Scotch, Welsh, and in a part of England and France. A spiced rye cake was much in fashion some centuries ago, and in some parts of Europe, rye is now a common food; with us, rye is in general use, while barley and oats are seldom eaten.

America has given to the world two most important products, maize and potatoes, of a value as a cheap, wholesome and palatable food, beyond the power of calculation. Maize is but little consumed in most parts of Europe, even by those compelled to economy in their selection of food—it is not a popular food there. The reader of British agricultural works, remarks with surprise, the small space devoted to this grain.

Without question, of all vegetable productions, indeed of all substances used as food by human beings, the first in dignity and importance is wheat. It has been the corn of civilization from remote antiquity. Other breadstuffs have multiplied more abundantly, and have, at different times and places, been much in favor. But wheat yet retains the high esteem it had when the granaries of Egypt supplied the brethren of Joseph. The track of civilization may be traced from that era by its culture.

The forms of wheat, other than flour, are numerous—maccaroni, vermicelli, caligari and other pastes, semolini and soujee or manacroup, and various delicate farinacious preparations are known to commerce. There is a beauty in wheat that commends it to popular esteem.

Fashion and fancy govern where they should not. Wheat growers complain that they are restricted by the demands of the market, to kinds of wheat by no means the best. Flour is judged by its whiteness and by the beauty of its bread, rather than its intrinsic nutritive qualities.

In another respect, wheat is entitled to the highest consideration. In most enlightened nations of the world, and from a remote period, it has had, beyond all other crops, a political importance. Webster said that a short crop of wheat in England, effects the exchanges of the world. The loss to this country, of absolute wealth, by the impoverishment of its wheat lands, is to be counted in hundreds of millions. The strong arm of governments has been raised to arrest this evil. War and diplomacy are no longer their sole business, but they give their energies to the raising of wheat—the governments of the world are turning farmers. No crop requires more art in its culture than wheat, and to none have been so much directed the labored researches of science and accumulated wisdom of agricultural experience and skill.

It has been said that the agriculture of the world has never yet been grasped by a master mind. It is true; and because, heretofore, the highest rewards of honor and distinction have never been obtained from agricultural pursuits. A new era is dawning. It is beginning to be felt and acknowledged that agriculture is the first and most important of all the arts, and that the highest honors and profoundest gratitude are due not to him who has trod successfully the accustomed paths of heroism, or the tortuous windings of politics, but to him who has proved himself a benefactor to his race, by an honest and well directed zeal in the ennobling study and pursuit of agriculture.

AGRICULTURE IN ITS RELATIONS TO THE SCIENCES.

From an Address before the Worcester South Agricultural Society, Sept 30, 1857.

BY GEO. M. PRESTON.

Science is the mother of art. Upon the principles of the former, are based the rules of the latter. The one exhibits wisdom, the other skill. In nature we see them both combined. The tree exhibits in its growth and decay, some of the most interesting elements of science. But it has also form and symmetry, and its leaves possess beauty of shape and color, which display an art which must be divine. The tiniest flower combines in its construction, wisdom and skill, harmonizing with each other, as pleasingly as does its beautiful shape, with its varied hues and rich fragrance. He who takes upon himself the work of aiding the earth in nurturing her growing fruits, must know the science which she exhibits, and must practice the art necessary to increase her productiveness and beauty, as well as to derive from such knowledge and labor, the greatest material advantage. He who can skilfully turn the soil, give to it its required fertilizing aliment, properly sow the seed and nurture well its tender growth, may be proud of the knowledge and ingenuity which he thus exhibits, and should be abundantly rewarded with the enjoyment of the fruits of his toil.

We find in some communities, a prejudice operating against the application of science to the cultivation of the soil. This will be removed, I think, when this application is more perfectly understood by the common mass. A similar prejudice is felt by the laboring class, against the thinking portion of the community. Both of these prejudices will be overcome, when men of thought and scientific research, and laboring men, more nearly sympathize with each other.

Without presuming to express any opinion which will spread light upon the science of agriculture, we will briefly exhibit its relation to general science, in which may be seen something of its real dignity. I use the term general science, in this connection, because it may be shown how this particular department of natural science, with its attendant art, may be connected with those departments of science in general, which embrace the laws of mind and the rules of conduct. Its connection with these, however, is so remote, that it would be proper to treat of it under other heads.

What then is the relation which agriculture sustains to natural or material science? To what particular department does it belong? How far is its success as an art, dependent on a knowledge of this and other departments of science? We cannot, of course, answer these questions now, in so full a manner as absolute clearness and accuracy would demand. We can only briefly state our own views, and by them exhibit, what we design to illustrate.

In human government we find no power so absolute and independent, that it owes nothing to other powers. Every system is more or less related to every other system. Every national organization must of necessity frame laws relating to other kindred establishments. When civilization has reached its highest perfection, and has literally conquered the world, there will be a perfect system of international law, which will preserve the rights of every people. What we may hopefully anticipate, in the government of nations, is now fully illustrated in Nature. The mineral, vegetable and animal kingdoms, though distinct from each other, are inseparably connected, and are also joined to other departments of material action. They are united by the immutable laws of chemical affinity, and are also indebted to the action of those forces, revealed in the science of meteorology.

But where in this range of sciences, shall we place the embodiment of those principles which constitute the science of agriculture?

First principles evidently must be drawn from all of these sciences. We may, however, assign its visible location, in the vegetable kingdom. Here is its centre of attraction. Here its wealth is apparent. Here its perfection is manifest. Look at its splendid triumphs, as it thus appears. How readily is the whole face of nature changed, so far as human skill operates upon it. Even Eden must have improved under the fostering care of its temporary lord. "The wildnerness" is made "to blossom as the rose." Wild forests, with their trees and shrubbery, mingled with the decay of former growths, give place to fruitful fields and gardens, or are changed into well cleared groves. Every plant, shrub and tree assume new beauty, when carefully nurtured, according to the laws of their existence. Should the men of two hundred years ago survey the localities where they, hardy settlers of our country, first broke the soil, they might indulge in feelings of patriotic pride, and they would not be long in discovering the charms of cultivated nature. Although the most fertile portions have only within a recent period, attracted our attention, still the elements of fertility have been so combined, as not only to open vast resources of wealth, but also to exhibit the victory of science over the soil.

Agriculture has built her gorgeous palace in the vegetable kingdom; but still she receives abundant tribute from other realms. He who like the queen of Sheba—who marvelled at the wisdom of Israel's monarch—would see the wisdom and glory of this noble science, must read the history of geological changes, learn what are the mineral properties of the earth's crust, study the nature of that unseen substance, the air, and even look to the heavens above him, to see those signs "which are set for times and for seasons, and for days and for years." All these treasures are invested in the great enterprise of beautifying and enriching the earth, that she may enrich those who give to her. Animals may subsist on the natural products of the soil, but we have the privilege of so operating in the great laboratory of nature, as to make food suitable for a noble race; yea, to spread a daintier board for angelic taste, than was prepared when angels talked with men.

In treating the subject in this connection, we may be allowed to look forward and survey the future. This science, as well as every other, is in a mere transition state. It has by no means arrived at perfection. All its principles, to be sure, exist, but many of them are like hidden ore, reserved for the appropriation of generations yet unborn. When all the laws of vegetation are known, when every part of the earth capable of cultivation is subdued, when every soil has its appropriate cultivated productions, then this science will have erected its monuments of triumph, as enduring as the earth itself.

Its trophies will be "the everlasting hills" and ever fruitful vales. The signs of national glory will only be made more attractive, while the relics of unjust tyranny will moulder in the dust. We cannot, of course, expect to see this day, nor will those after us, for many generations, behold its dawn. But shall we not have its brightness before us, as an ultimate aim of action; an aim nearly as worthy and noble as the perfection of human government, or the intellectual and moral renovation of the race.

I might allude—as an incidental illustration of the dignity of this science, coming more properly under this head—to the multitude of its devotees. That religion—in human view, at least—is the most flourishing, which has the largest number of adherents. So in science. The sculptor and the painter practice an art, the principles of which, few master. Few arrive at eminence in the knowledge of the sciences; many learn the mechanical arts, and become acquainted with the principles of mechanism. But the most by far enter literally upon the field of labor, and while they till the soil by manual exertions, also feed the mind with those facts and theories which the earth reveals. Scientific men, as such, have done, as yet, but little, to advance the interests of the husbandman. The most has been done by practical experimenters upon the properties of the soil and its vegetable productions. Farmers are led to the necessity—not however to so great an extent as formerly—to learn their own science. The pursuit of agriculture is older than any other pursuit. Every generation of men have known something concerning it. We find also another fact, and that is, that the noblest and truest of every rank and profession, not only honor this work, but actually engage in it. Philosophers, statesmen, and the wisest and best men have handled the spade, and have wielded the scythe. Our lamented Webster, I need not remind you, took a noble interest in the great cause which we are laboring to promote. Only the weakest men regard it as a disgrace to till the soil. On the contrary, the dignity of labor is here most manifest.

Gentlemen, in order that the dignity of your work may be preserved and increased, mind and muscle must work together. Science and labor must unite. The philosopher and the farmer must grasp each other's hands in token of unceasing fidelity.

Another stand point, from which we may view the dignity of agriculture, is that of social life. This topic alone, is sufficient to occupy our whole attention, at this time. Even within such limits, I feel myself wholly unable to do it full justice.

Agriculture is in truth an art of peace. Whenever there is a quiet enjoyment of the administration of government, then we behold progress in every art and every science. More beautiful to the sight, is the field of toil, than the blood stained battle field. More ennobling to the view, is a happy band of reapers, than all the savage array of military glory. Many a prouder hero has handled the implements of husbandry, than he who has wielded the sword. It is a fact, which no one will dispute, that the open fields of any country are an index of its political and social state. It may, indeed, sometimes happen, that the sciences and the arts of common life flourish in seasons of political unrest, but such signs must be interpreted as indicating the real state of society, which will sooner or later fully develop itself. As a general thing, whenever the cultivated fields of a country, or those designed for cultivation, are neglected, we suspect some political or social calamity to be the real cause. But when, on the contrary, we see fruitful fields, thrifty herds and orderly dwellings, we suspect no such evils. We may in this way discover, not only the political condition of a people, but also its progress in civilization. A government will generally be, what the intelligence and character of the masses make it. To learn what is this character, we must not seek out a few who possess learning and the greatest scientific attainments, but we must go out into the open country, and see what are the habits of the people in common life ; what intelligence they exhibit, and what arts they possess, and especially behold to how great an extent they cultivate the soil. Go to those countries inhabited by a savage and barbarous people, and you will observe that they have little knowledge of the nature of the soil, and of a large variety of its products, while they show but little skill in tilling the ground. They subsist chiefly by hunting and fishing, and mutual plunder. Equally as rude are they in other arts, while their social condition is, in the worst sense of the term, miserable. Those who have advanced farther in civilization, begin to entertain the noble idea of subduing the earth, and rendering it, as far as possible, productive ; and those who are the farthest advanced in knowledge and the enjoyment of social privileges, aim to the ornamental, as well as the useful and profitable, in the cultivation of their estates. We see the products of their skilfully and finely arranged gardens, as well as of their fruitful fields. The flowers and fruits of every climè, are brought into companionship, and are carefully nurtured, that they may make the soil of their adoption their home. We can see the influence of such progress upon the tastes of the people in regard to other things. Their dwellings are ornamented, not only by flowers and shrubbery, but by the beautiful in architecture. The same remark extends to dress and habits of intercourse, yea, to morals and religion.

It may be said, that progress in moral and intellectual refinement, is the cause rather than the effect of such a state of things, as it respects agriculture. But I ask, if this be so, would not the reflux influence of such an effect—of nature thus cultivated by our own efforts—be as great as what is described as its direct influence ? When the best securities of property and happiness are granted to a people, their success in the common arts of life, thus better secured, operates as an incentive to the preservation of such securities.

The remarks which we have made on this topic, may be illustrated in a manner most interesting to us all, by a reference to our history as a people, and the present condition of our country as to its natural resources of life and happiness, when compared with its condition when occupied by its aboriginal population. The forest was the home of the American Indian. He belonged to a savage people, who subsisted by hunting and fishing, and paid but little attention to clearing and improving the soil. His government was as simple as his life. His countrymen were not a people, in the political sense of the term ; they were only a collection of independent tribes, often hostile to each other. They rejoiced not in the civil arts of life, but desired the most skill in warlike achievements, or in archery. Under their administration, America was truly a wilderness. It had wild forests, wild beasts and wild men.

But how has the face of the country, as well as the character of its inhabitants, changed. Much of the reputation which our Puritan forefathers sustain, at this day, as well as our real worth as a people, is owing to the circumstances connected with their settlement in New England. A band of noble hearted men, bound together by the sympathies of a religion which was independent of the ecclesiastic dominion of their native land, found an unbroken wildnerness, of which they gained an easy possession. The subduing of this wilderness united them in such action as increased their mutual sympathy and respect. The land cleared and cultivated by themselves, was in a visible sense their own. They looked upon its improvement as having been secured by their own efforts. The spot cultivated by each family, received from it the endearing appellation of home. Mutual sympathy, and we might also add, the policy of defending themselves against the attacks of a savage foe, brought them together into communities. The disposition thus to unite has continued to our own time. We behold this structure of society throughout New England. While we have our commercial centres, the bone and muscle of our Northern States are in the agricultural districts. Manufactories have lately, it is true, drawn largely upon the intelligence and strength of the people; but what we may call strictly New England society—regarding the appearance which it has always presented—comprises those who cultivate the soil.

It is true, confining our attention still to the fact, that many influences besides that exerted by the union of men in the interest of one pursuit, have contributed to our present social condition. But when we consider the fact that the political relations of our ancestors were almost entirely broken up by leaving the mother country, and also the fact, that society thus left forms itself anew from the elements of individual character, and more than this, when we know that our opinions are greatly modified by circumstances, we are led to conclude that the necessity of seeking the first resources of independence in the soil, had a large influence in moulding our social fabric. We have only to examine our laws relating to the security of estates in land, which give an individual a title to a measured portion of the soil, the improvements of which, made by him, are appropriated to himself, to behold one of the foundations of justice, liberty and equality, which are the dearest privileges secured by our ancestors with their blood. We have only to look over our New England towns to see those social influences, which are so powerfully exerted by the daily employment of the majority of the people.

It is interesting to the traveller to pass through this and neighboring Commonwealths, and see the whole cultivated surface dotted with the dwellings of intelligent and industrious farmers. The forest is left by itself, while the fields, like their owners, seem to seek congenial companionship. Here and there the spire of some church marks its location among the hills, and in its vicinity, may be found the village store and post office, to which sacred and secular retreats, the inhabitants repair for spiritual and temporal food, and to receive communications from the outer world. I should not fail to allude here, to the school-houses scattered over the land, which occupy so prominent a place among the localities of our earlier days.

In determining what are the social influences which pervade a community situated in this manner, we must see what are the different sympathies which are called into exercise. One of these influences is exerted by the union of the whole community in the same occupation. This union affects the parties entering into it, in different ways. Inasmuch as the work performed on a farm engages the interest of an entire family, who seek not only to make productive their estates, but to render attractive their home, there is added to the usual sympathy of those engaged in a similar occupation, that of families. There is no aristocracy in our agricultural community. Or if it be allowed that there is such, in some localities, it is too small to attract much attention. If it exists, it is based on nothing but the possession of hoarded or inherited wealth. But it is not often the case, where men secure a regular support from farm labors, that there is a great difference in their pecuniary prosperity. This difference is occasioned often by another cause, which operates favorably upon society, and that is the spirit of emulation. The annual products of a farm may be increased by skilful cultivation, and a judicious arrangement. There is often a disposition, in a good farming community, to excel in this. This spirit is encouraged by these annual gatherings and exhibitions. We meet here familiar faces, and our interest in each other is reawakened, when we behold the first fruits of harvest, which each has brought up hither as an offering to the noble cause of agricultural progress. This spirit of emulation in communities, is excited through the year. The progress of the crops in different fields, possessed by different owners, is watched, and the interests of the whole community are frequently discussed, when its members meet together.

How interesting it is for us to watch the progress of the season. We are not only interested in seeing the snows of winter retire, and the buds of spring opening their hidden treasures of beauty, but we rejoice to see young and old going forth into the fields, to open the long buried soil, and sow the precious seed. We watch with interest the growing blades, when they at length appear. All readily unite in this pleasure and aid the great work of nature, by loosening the soil, and destroying the hostile weeds. Soon other scenes awaken our interest. In the morning we hear the sound of swinging scythes, and at night behold the nicely raked hay and the returning teams laden with the valuable material. At a later period, the orchards are laden with fruit, the cornfields show their yellow ears, the vine reveals its purple clusters, and the wheat invites the reaper's toil. How sweet to hear the song of harvest. Well might our forefathers, rejoicing at their success in tilling the soil of the New World, set apart a day, which in the country is more truly than elsewhere, both a holy day and a holiday, in which kindred and friends partake of a joyful feast, and sing their songs of "thanksgiving" to "the Lord of the harvest." Give me a New England home,—the home of liberty, the birthplace of the free, where our fathers bled on the field of battle and sweat on the field of toil. Let me rejoice in time honored customs, and be permitted to hear the Sabbath bells, and visit the district school. Our streams may carry with their force the noisy machinery, and mark their course with the signs of enterprise; but our New England homes are among the hills, and in the fruitful vales. Long may they be honored by those who inherit their father's patriotism and virtue, as well as their farms and dwellings.

In addition to the influence of the theory and practice of agriculture upon social life, we may notice the favorable opportunity which it offers for the growth of morality and religion in the community.

The consideration of this topic, I deem to be of no small interest, especially when we bear in mind the fact, that men's characters correspond in some measure with the nature of their occupation. Those engaged in mental labor, are affected by the nature of the subjects which demand their attention. There are influences which operate upon the minds of those thus engaged, exceedingly unfavorable to the growth of moral power in their characters. The philosopher is not the active philanthropist. He looks upon men afar off, and upon himself as a mere abstraction. To theorize is his work, and what of practice he is obliged to perform, only shows that there is more work for theory. Still, such employment has also its influences which are favorable to the promotion of a character which has its moral excellencies. Mercantile life is full of perplexity and temptation. There is but little in it, when compared with other callings, to give vitality to the moral principles. Yet the insight which the merchant gets into human nature, in its worst forms of selfishness, may, if rightly improved, lead him to seek the opposite, benevolence. The manufacturing establishment, or the shop of the mechanic, filled with the noise of the hammer and the clatter of wheels, with its corrupt atmosphere clouded with dust, does not minister to the free and undisturbed flow of feeling and thought. Long confinement at precisely the same kind of work, does not contribute to enlargement of views, or nobleness of impulse. Men thus employed, if they do not enjoy some counteracting influence, become mere machines. Their feelings, if they have any, incline to the sensual. They are not accustomed to think deeply, but on the surface. The associations of manufacturing employment, are often such, as not very readily to produce moral restraints. All classes and dispositions, young and old of both sexes, are often indiscriminately congregated together. In such a case, unless moral influences, and strong moral influences too, are brought to bear upon each individual, immorality will be the sore pestilence which will rage among them.

In an agricultural community, I think may be found the most favorable opportunity for the formation of proper habits of virtue and uprightness. The mind acts freely and leisurely. It has employment enough to discipline its powers. We have not the evils here to contend with, to such an extent, at least, as are connected with manufacturing life. The pure atmosphere of heaven is freely breathed. The healthy fragrance of the ploughed field, and the sweet smell of flowers, in appearance wrought in a beautiful ground work of green of every pleasing shade, the cheering prospect of growing and ripening grain, the music of the harvest song, and the joyful plenty of dreary winter days, all combine to produce a happy impression upon the mind. In the shop, men are confined within dirty walls, but in the field, they have a view of the universe itself. The floor beneath them is the beautiful earth, and the ceiling above and around them is the blue dome of heaven, frescoed with sunlight and cloudy shades of every variety of form and beauty. The sounds which they hear are not those of the anvil and the loom, but the lowing of the herds, the sweet carols of the birds, and the murmuring of winds and waters. Not only is such a situation of the laborer more conducive to his bodily health, but also to the healthy moral tone of his character. There is not that inclination to lustful and convivial pleasures, which we find in those who are confined within walls, and in persons of sedentary habits. Besides this, it is a fact, that the health of the body affects the mind and the character, in the most favorable manner. We not only notice the fact, that young men who are educated upon a farm, have stronger physical powers, but that they also have stronger moral principles, and a more active intelligence.

I need not step aside much from the matter now before us, to state, that the intelligence of an agricultural district, is more genuine and active than we find elsewhere. In cities and villages, where professional, mercantile and manufacturing pursuits are followed exclusively, there may be a more refined and artistic taste, but not more general intelligence and enlarged conceptions. President Edwards once said to a class of theological students who were in the habit sometimes during their course of study, of occupying vacant pulpits: "If you go into the city, take your best coat; if you go into the country, take your best sermon." The best physical and moral education which one can have before entering upon a course of liberal study and a professional career, may be found in spending one's earlier years upon a farm. Nathan Dane, who was a lawyer of some eminence in my native town, whose life was not in vain, and whose death was justly lamented, always rejoiced that the first twenty-one years of his life were spent in the occupation of farming. There are others, yea, many others in professional life, who rejoice with him. Their strength of body and of moral principles, gained in early life, aid greatly their success and usefulness.

I need not make any marked transition, in passing to a view of the connection of agriculture as a pursuit, with religion. Religion is the soul of morality, its fountain head. All our conduct proceeds from our natural inclination, modified by our judgment and determination, though not always affected by such modification. Our inclination is powerfully acted upon by external causes. There are no purer sources of influence to lead us in the right direction, than those which bring us in connection with God and his truth. By this truth, I mean all truth, all science, of which He is the author.

It is sometimes objected to the study of natural science, that it leads to atheism. I cannot see who would be likely to raise this objection, but those who have superficial views of the connection of the Deity with his works. The student of science discovers a chain of causes and effects, which is longer than he can comprehend. His whole mental vision is measured by it; but still he sees not on what it hangs. In no class of investigations are we so impressed with incomprehensible wisdom and benevolence, as in those which relate to the structure of the earth's crust, and to the properties of its vegetable products. The geologist, the chemist and the botanist may search for ages, and find that there is still an exhaustless mine of intellectual wealth. The agriculturist, who is such in theory, will find that his field of labor embraces a wider space than what is measured by his few acres. The tendency of his study and work is not to atheism and a gross materiality, but his conceptions of a real living and active cause, wise and benevolent, are elevated, and his highest admiration is called into happy exercise.

Taking this in connection with those influences, the force of which we have considered, we are led to see, that the student and the Christian may unite with the husbandman. The character of each may be blended in that of a single individual. Such an one can not only strengthen his muscles and invigorate his vital functions, but he is in the most favorable situation for moral improvement and religious contemplation. The work which he engages in, may be truly the appropriate study and employment of every man. It is not beneath the highest, nor above the lowest. Its dignity may give honor to all who devote themselves to it. Its simplicity may furnish many lessons to those whose capacities are the most limited.

Gentlemen: The cause which you seek to promote, is the perfection of this science, and its best application to labor. It is not your object—or should not be—to amass wealth by your toil, nor merely to earn your daily bread, but to improve in the knowledge and execution of your work.

I am addressing those who I believe have this object in view. It of course requires a greater knowledge and skill to aid the earth in the formation of a soil, adapted to the growth of particular products, than to perform the labor of the sower and the reaper upon that soil already enriched and fitted for any and every growth.

The work of the philanthropist is to improve uncivilized human nature; to elevate the degraded, to refine the uncouth, to enrich the poor, and not merely to labor among those who are in the most favorable situation for improvement. As did the Great Teacher, he must "seek and save that which is lost." So it should be the object of the agriculturist, to make fertile the whole earth, if he would carry to perfection his science, and enrich all mankind. In the great work in which you are engaged, let EXCELLENCE be your object, and EXCELSIOR the motto which inspires you to gain it.

HOW TO BE BETTER FARMERS.

From an Address before the Worcester West Agricultural Society, Sept. 17, 1857.

BY JOHN A. NASH.

There was a time in the progress of the earth to the condition in which we find it, when its whole surface was nothing but rock. From the disintegration of this rock comes all the loose material which covers the earth from a few inches to several hundred feet in thickness.

In the rocky shell of the earth are contained all the inorganic elements of plants, as the organic elements are contained in the air. When the rocks become disintegrated, the plant food they contained is commingled with the soil formed from them. Of fifteen elements, which go to make up the plant, eleven exist in the soil and four in the air. That some of the former exist also in the air, in very small quantities, is possible; and it is quite certain that the latter exist in the soil, as far as it is penetrated by the air. The inorganic elements of plants —those that are indestructible by fire, and constitute the ash after the fire has consumed what it can—are drawn mainly from the ground; while the organic elements—all of a plant that can be burned away—come from the air. Both these classes of elements are essential to the growth of plants. Standing with its roots in the ground and its leaves in the air, the plant has a lien on both, and from both draws these elements, which, as elaborated in its vegetable organism, are to perfect itself, and which as further elaborated in the animal organism are to constitute the entire animal body.

Although the material, consolidated first into vegetable and then into animal forms, comes largely from the air, yet considering the air to be but a part and parcel of the planet we inhabit, it is strictly true to say that all plants primarily, and all animals secondarily, are formed out of the earth, and that to the earth, taking the term as implying the aggregate of our plants, they return.

The conditions of plant growth having been supplied by the Creator, plants of some kind, such as the soil and climate of each locality are adapted to produce, and such as have the power to keep down other species—for there is war in the plant world as well as in the animal—will grow. Animal life follows by an order of Divine Providence. Wherever there are plants, there will be animals. The fiat of Omnipotence, that both increase and multiply, has gone forth, and will be obeyed. The laws by which inert matter, as locked up in the soil or floating in the air, arranges itself in forms of beauty, and life, and happiness, are God's laws, not man's. Whether it is in the power of the human race to increase the aggregate productions of the earth, is perhaps doubtful. But within certain limits, it is ours to decide what the productions shall be; whether woody plants or farinaceous—whether domestic animals, or wild.

Here then comes in the vocation of the farmer. You may not be able to make your grounds produce more than they would have produced, if you had left them altogether alone, nor even as much; but you can make them produce what you need and what a grateful market will pay you well for, when you have it in excess of your home wants. Instead of tall trees and rampant underbrush, and beasts that make night and day hideous, of which, if left to themselves, the land would produce more than enough, you can make them produce corn and the grasses, and then butter and cheese, beef, pork, veal, mutton, skins, wool, whatever will feed and clothe a growing population. This acre you can bid to grow the cereals; that you can teach to grow esculent roots; many you can engage to grow grasses perpetually; and some which will grow nothing else, you can compel to grow fuel. By a wise forethought you can make every acre contribute to your own and the general good. Such dominion is given to the farmer over the field, and even the beasts of the field—over all the productive powers of the earth—a dominion, one would think, adequate to satisfy any ordinary ambition.

Why the farmer should not be contented with his position—more than contented—proud of it—I cannot tell, and I do not believe he can. If there is the shadow of a reason, it must be, that the same blessing is given to all other farmers, and so is very common, and like other common blessings, is despised.

Other callings are essential to the well-being of society. They are essential to the farming interest even. You could not turn over the soil, unless somebody made your plough. You could not sell your produce, unless many were so busy in other employments as not to be able to grow their own. You are about as dependent on the manufacturer, the mechanic and the educator, as they are upon you. It is only when each fulfils his part, that all prosper. You feed all the other professions, and clothe them, so far as the raw material is considered, but you do not do this for naught. They are your customers. They pay you; and if they could not get along without you, neither could you prosper without them.

But you, who delve in the soil, who decree what this acre shall produce and what those, who lay your plans for future years and the elements obey you, have a nobler dominion over nature than any other, and at least as benign a mission towards your fellow men as the best. You have no occasion to be seeking a higher employment. There is none higher. None but rogues and fools pretend or think there is. Your calling is in high esteem with God and with all honest and sensible men; and having deliberately chosen it, let me say to you, strive not to be *better than farmers*, but to be *better farmers*.

How to be better farmers, is the subject of what I have to say; and if any think my discourse directed too much to one useful and honored class, and not enough to another class of workers, the mechanics, to whom Massachusetts and New England owe their prosperity, in no small degree, it is not because I love Cæsar less, but Rome more. There is another reason; a wise farmer puts each of his acres to the production of what it is best adapted to produce. You should do the same with your speakers. I might not be able to instruct the manufacturers of Worcester West. If I should undertake, I might show myself behind the times. They probably know too much for me. I certainly could not tickle the ears of any outsiders from either calling, who would prefer poetry to blunt prose, and who might think hogs and horses, and fertilizers, and crops, vulgar things, not to be talked about. This, moreover is the farmers' day, and I believe my mission is to them.

I have spoken to you of becoming better farmers. Think me not ignorant of the fact that you are good farmers already. I should have learned that to-day, if I had not known it long ago. But are you too good to become better? I think you will say not, for I have observed all over the country, that the good farmers are the very ones who desire to improve, while the poor ones seem to think themselves good enough, and have very little inclination to be better.

My first suggestion is, that *you should cherish a good opinion of your employment.* If a few others, not worth heeding, speak slightly of it, it is no matter. But when farmers themselves have their misgivings about its respectability, the effect is all bad, for no man living can do a thing that he is half ashamed of as well as one that he is justly proud of. Plant yourself therefore firmly on a good opinion of your calling. Such an opinion is no fiction; it is a verity; it will stand as long as God gives us land, and there are heads to direct and hands to work it. Farming well followed gives a position good enough. From that position, your good sense will, of course, teach you not to look down with scorn on the man who possesses less acres; and by all means let your conscious worth teach you not to look up with feelings of inferiority to the man who contrives to get through life with softer hands, but with no better head or heart. Perhaps you say there is no dignity in labor. If so, you are half right and half wrong. In unintelligent labor there is no dignity. The opinions of mankind have so decided long ago. But intelligent labor, wisely directed, and leading to valuable results, is honorable, is attended with true dignity, commands and receives the respect of mankind. None but a shallow pate can despise such labor, if he tries. We are so constituted that it is impossible. Suppose some of you are managing your farms wisely, and others who hear me are managing the shop as wisely, working the head and working the hand, real working men, getting a good, honest living by work, can I think less of you than of another, who is wasting life on what his father earned? No, it is impossible. None but a fool can do that, and that is the only thing which a fool can do and a wise man cannot. And now, farmers, the sooner you can learn how weak, how utterly contemptible, is that clique, who affect to despise honest toil, the better. God has placed you as coworkers next to himself. It is yours to beautify his own creation, to utilize his works, to convert deformity into loveliness, and barrenness into fertility, to "make the desert blossom and the hungry to be satisfied." From that exalted position, so long as you fulfil its obligations manfully, you may look down on Beacon Street and the Fifth Avenue, on uppertendom generally, and the codfish aristocracy particularly, only be discriminate, for there are likely people even there; but do not look up to any one, with other feelings than those due to intrinsic worth. With ten acres, or a hundred, or a thousand—a little farm or a great one—well tilled, you can well afford to be generous in your estimation of all, but you need envy none. I charge you, in all earnestness, maintain a high opinion of your calling, and be satisfied with the position it gives.

My second suggestion is, that you strive to assume the high position which your calling is adapted to give. You choose your religious teachers, you give them your ears every Sabbath, and then you despise them, if they do not make themselves worthy to be in the pulpit. You commit your legal business to men in the legal profession, but you have no patience or respect for them, if through ignorance or inattention your interests suffer in their hands. You intrust life and health to your physician, but it is solely on the ground that he knows his duty and will do it faithfully. So you employ teachers for your children, but you will not have a particle of respect for them, further than you see them earnestly devoted to their business, every day making themselves worthy of the confidence you repose in them.

Now it is true that the farmer is not charged with the spiritual or legal, the sanitary or educational interests of the community; his business is more exclusively his own business; a sort of quiet, independent business, one with which others have less occasion to be meddling. Nevertheless, his doings do not all terminate in himself. I pass along your roads. I see ten farms in succession, where the houses are neat, and all around them is productive and in good taste, the acres well fenced and teeming with crops, the stock select and in high condition, the barns almost liable to be mistaken for churches, I say these farmers must be doing well for themselves. Should you not justify me in that conclusion? But this is not all. They are doing well for the country. It is such farmers as these, in conjunction with manufacturers and mechanics of like spirit, that are to make our country glorious, if the politicians do not spoil it. Think of the children trained there. They can hardly help growing in the same way.

But I come to an eleventh farm, and it is quite different. What a house! What a barn! You would not blunder in there to worship, if you were ever so devout. What lands! Cattle! Fences! Every thing! You know just how it looks. Now that man is doing badly—badly for himself, badly for his children, badly for his neighbors, badly for the adjoining lands, which are worth less for being so near his, badly all around. Enough such farmers would ruin the best country that God ever made. Wonderful, far beyond what most of us can compute, is the difference between the influence on the public welfare, of a worthy and an unworthy farmer. The stranger passing the first would say, This is a fine country, this must be a well-governed people; surely industry is rewarded here. Passing by the second, he might say, A wretched country this. What tyrant has clutched the reward of industry and left the people to stagnate in poverty? The short sighted, aimless, inefficient farmer, whose territory bears false witness against the religion and government and laws of the country, is to be pitied, is to be blamed; but too much praise can hardly be accredited to the farmer whose house, barn, fields, stock, every thing, is a living testimony to the benignity of the institutions under which we live.

These considerations should operate a mighty influence upon the cultivators of Worcester West. Your fathers were good farmers, and you are better. There is progress. Your sons are to be better still; and you too, are yet to be still better; that, I understand, to be the meaning of your assemblage here to-day. You come not so much to carry off a few dollars in premiums, as to learn something from each other, and to form and strengthen, that you may hereafter carry out, high resolves. Supposing it should be admitted—as for aught I know it might be with truth—that the farmers of this cluster of towns, considering the age of the country and the original hardness of the soil, are the best in the world; that would not satisfy you. You want to be going ahead, from good to better, from better to best, and then to something beyond any thing yet existing. Long, long will it be, before there will be no room for improvement in the great and superlatively important art of beautifying the earth and making it yield up its treasures to supply farmers' wants. And I cannot but think, that if you will fully appreciate your position as farmers, if you will realize its responsibilities, if you will strive, by gathering information from every possible source, to excel, and above all, if you will educate your sons to be a little better farmers than yourselves, provided they choose that line, for I want no compulsion in this matter, a most important step will be gained towards continuous improvement.

A third suggestion, or rather series of brief suggestions, for I must not trespass upon your patience, shall relate to practical farming. On the laying out of farms and the appropriation of each part to objects best suited to it, three things are to be considered; appearance, convenience, productiveness. If a man have but one idea, and that be of beauty, he may sacrifice too much of convenience and too much of solid stability to the gratification of the eye—place a clump of trees on arable soil instead of using it to cover up a deformity, or condense so many shades in close proximity with his buildings, as seriously to injure them and the health of their inmates, or devote time to the merely ornamental, when he should be driving at substantial productiveness.

If his one idea be of convenience, he will be likely to have a cow pen, a sheep pen, all sorts of pens just where they should not be; a building to make cider in, and another to husk corn in; another for fall fruit, and so on; more buildings than you could count, or would be willing to afflict your eyes with a second time; a pasture for the cows, one to wean calves in, one for the pigs, and so of all the rest, implying more siding, roofing and fencing, than the richest man in town could even dream of being able to keep in repair. It would be a mighty convenient farm, but ugly enough to give one the lock-jaw, and absolutely incapable of cultivation, in that form, with a profit. There are some such farms.

If his one idea was of productiveness and profit, all that is ornamental and all that is comfortable might be sacrificed, and yet the main object not be gained.

I am aware that the present occupant is not always responsible for all that we see in passing him. His predecessor may have left him too many poor buildings and quite too many falling fences; and it may be wise for him, in view of a deficient capital and an expensive family, to be patient, and bear with things out of joint, till better able to have them as he would. But a man of sense and energy will not spend the whole of life on a farm where every fence is in the wrong place, and every building both in the wrong place and of the wrong kind. In passing through your region, one sees very much to praise, and cannot but lament the exceptions. You all know, I suppose, that it requires but half as much lumber exposed to the weather, to shelter your stock and crops in one large barn, as in two or three small ones. I do not apprehend that lumber is ever to be very scarce among you, because I am sure you will see the importance of encouraging its growth on lands better fitted for that than for other purposes; and it must be admitted that, like most of New England, you have fencing materials that are lasting and abundant; yet I cannot but think you will agree with me, that fewer lots and larger, fewer fences and better, and fewer buildings in a high state of preservation, would be an improvement upon what has been the general practice.

A well laid out farm, with all its arrangements convenient, every acre producing what it is best adapted to produce, is one of the most beautiful objects in nature. To make it such, I am well aware, is not the work of a day, nor of a year, nor perhaps of five years, unless in the case of a retired millionaire, who has betaken himself to spending money in farming; yet the farmer who has not a dollar to spend for mere fancy, may bring it about in ten years. Let him lay his plan, if he is on one of these unseemly, inconvenient, unprofitably arranged farms, of which there are yet too many. Let it be a comprehensive plan, reaching some way into the future, and embracing by all means the expenses of living the while. When he alters any of the old arrangements, let it be in harmony with the plan—a part and parcel of its execution, so that when a thing is done, it may be done well, and will not have to be undone. He may find it best to use for a while a very unsightly conglomeration of old barns, till he gets the means for building one that will not be ashamed of itself in comparison with your neighbors. It may be wise to botch up the old sheds for a few winters. He may find it necessary to endure the ugly fences by the wayside some years before he can replace them with walls to stand half a century. But if he does each thing well and in conformity with a plan, to be in due time executed in all its parts, like the builder, who lays a stone here and another there, till the structure which had existed only in his mind, stands forth in solid granite, the result will be the same with him. That farm, beautiful, convenient, productive, which had before existed only in his mind, will, by slow but sure degrees, become a substantial reality—a fitting home for his advancing years, a rich inheritance for his children, a mark which he shall have made upon the world, without being the poorer for having made it.

With regard to the appropriation of lands to this or that product, as indicated by the nature of the soil, the climate, locality, and markets, it would be presumptuous for me to undertake to advise you. If you are as wise men as I take you to be, and as a passing view of your premises would seem to indicate, you have been studying that question long years; you have not only studied it, but you have experimented upon it; and I suppose you have for the best of reasons concluded that the grasses, as produced in large pastures and small but highly fertilized mowing lots, and then converted into dairy products and meat for the shambles, are your main chance. For our country as a whole, I have no doubt that Indian corn is the most important crop. It was a beautiful conception of our own Longfellow, that brought it from the spirit-land, in answer to the prayers, longings, yearnings of his Hiawatha, for a yet unknown good to mortals. Your soil is well adapted to this crop, so far as raising a large quantity on a small space, is considered. The cost is another thing, for unfortunately your soil is not as friable as it is strong; and although it is quite settled that you can give great crops, yet it is not perhaps as clear that you can do it with a profit. My own impression is, that a small breadth, highly manured and well cultivated, giving sixty bushels of shelled corn to the acre, as the minimum return, (I mean of course in good seasons,) is your true policy, as regards this crop.

I would grow it thus: leaving the guanos and the super-phosphates, &c., alone, till it is somewhat better settled than now, whether you can afford to pay the prices asked for them, I would look about to see if my own farm does not afford fertilizers that are already paid for—paid when the farm was bought. I would see what accumulations there are in the form of half-decayed vegetable matter. If I could do no better, I would pounce upon the swamp mud. For an acre of corn, I would bring out, as early as August, if convenient, twenty loads, and dump it in a shape to be fully penetrated by sun and rain, and easily turned over with the plough. Occasionally, I would run the plough a few times through it. As late as the frost would permit, I would throw it, by means of scraper and shovel, into a high pile, and mix intimately with it a bushel of stone lime or two bushels of shell lime to each load. This would keep it warm through the winter. The snows would melt upon it and keep it moist. In the spring, I would mix with it as many loads of strong ammoniacal manure from the barn, and a bushel of ashes, a peck of salt, and a peck of plaster, to each load of the compost. About the 20th of May, or earlier if the season were forward, I would harrow in twenty-five loads of this, in a warmly fermenting state, and would put the remainder, ten loads, if the whole should have shrunk five, into the hills, and plant immediately, while it is yet warm. This I know implies considerable labor, and labor is money with us, and I am glad it is so; but it will give sixty bushels of corn to the acre in a poor season, eighty bushels in a good season, and one hundred in a very good; and, what is more, it will give great after crops without further manuring.

It is now manifest that the potato disease has not yet found a specific remedy. Should you, however, despair of the profitable cultivation of this plant? I think not. If you will select for it good, sound upland, not over rich, and not filled with ammoniacal manures, either from the stalls or from the Chincha islands, and if you will apply to the hill, in small quantities, a compost of potash, lime, salt and plaster, wood ashes to supply the potash being the principal ingredient, I believe you will succeed in getting moderate crops without much disease, and that if you plant from seed so grown for a succession of years, the tendency to disease will diminish, and ere long disappear. But in the present aspect of things, it could hardly be recommended to plant potatoes to such an extent as to ruin one, in case of a failure. I should fear to go largely into the business, on the ground, that if mine turned out well, other people's would also, and so the price would be down ; or if theirs failed, mine would also, and so I should have none to sell, whatever the price might be.

For the cultivation of root crops, I am not indiscriminately an advocate. Our climate can never be as favorable to the turnip, as that of England, and the north of Europe generally. They are indebted to the Gulf Stream for their ability to raise thirty, sixty and a hundred tons of turnips to the acre. The turnip delights in a damp, cool climate. Our climate is the reverse of theirs—has a dry atmosphere, and is subject to very long periods of drought. Besides, we can grow a splendid crop of corn, whenever we wish to subdue and fertilize our land for after crops. This they cannot do. They are confined to the turnip, as the leading, preparatory crop in their successions. The turnip is essential to the success of English agriculture, but is not essential to ours. Nevertheless, we can grow large crops of roots, and with a pretty good degree of certainty, if we will prepare our ground carefully ; and I think there are positive reasons for going more largely, than has been usual with us, into this kind of cultivation. The roots afford a juicy, succulent food for cattle, admirably adapted to keep the animal in a healthy, growing condition ; and they are a great help to a profitable consumption of the inferior qualities of hay, as also of straw, corn stover, and the like ; and I believe all agree that nothing is like them for increasing the home fertilizers. All farmers, who have tried it faithfully, tell me that more stock can be kept on a farm, if a part of it is made to grow roots. Twenty acres of mowing land, with two acres of turnips, will carry more stock through the winter than twenty-two acres of mowing land. The same may be said of ruta-bagas, carrots, and other roots of a like nature. They enable you to winter more stock, not solely by virtue of the nutriment they contain, but because they promote a healthy digestion, thus enabling the animal to appropriate more perfectly the nutriment contained in other food. It is on this principle, that a bushel of carrots and a bushel of oats, are as good for a horse standing in your barn, or at moderate work, as two bushels of oats, and not because the carrots contain as much nutriment as the oats, for they do not, but they cause a more perfect appropriation of the nutritive principles in both. It is very much so with all your cattle. If you give them a few roots daily, they will not only devour coarse food, which they would otherwise trample under foot, but they will masticate it more courageously and digest it more perfectly. The natural order is this,—more roots this fall, more stock next winter, more manure next spring, and more crops next summer.

Do not understand me as advocating the keeping of more stock than you can keep well. There is no worse mistake. In all ordinary cases,—and it would be a shame if an extraordinary case happened more than once to the same man,—cattle should be fed to the full, made to mature early, and to give a quick return. The farmer's problem is how to keep much stock, and to keep it well.

The French have a proverb which runs something like this: "No cattle, no agriculture; few cattle, little agriculture; many cattle, growing agriculture." Some of their best writers lay it down as a rule, that the annual production of cattle on a farm should at least equal in value the annual production of the fields. In this, I suppose, they would include the butter, cheese, eggs, and other animal products. This rule, like most others, has its exceptions, as in the case of the market gardener, whose animal products would of course fall short of his vegetable products. We might except, also, the farmer on land peculiarly adapted to growing the cereals, and perhaps some others. But as a general rule, it is correct to say, that the animal should at least equal the vegetable products. Where it is not so, the farm, in nine cases out of ten, is deteriorating, and the farmer, in nearly every case, is becoming poorer. But you will be the last to err on this point, and therefore I need not dwell upon it.

But is there not a kindred point on which you may err? How is it with the character of your stock? We see on these grounds fine animals. Is it so in your barns? I presume that improvements are going on. But is your county, and is the old Bay State, able to show as many animals of the most approved breeds, as would be for the interest of her farmers? Perhaps so, but I must say that I doubt it. There must come a time when there will be fine animals, and when the prices will be so within bounds, that other than fancy farmers can afford to own them, and I desire it to be hastened.

I would gladly have spoken on other topics, connected with your employment, but I have detained you too long.

It remains, that I congratulate the officers and members of your society, the farmers and the mechanics of Worcester West, the ladies, and all who have contributed to this festival, on the success of your exhibition.

If the ladies will tolerate a little egotism, I will tell them a short story about myself. I once gave an address before an agricultural society in the Green Mountain State; and there were so many things I wanted to say to the farmers, that I found no time to talk to their wives and daughters. I did not forget them—I never do such a thing as that. But seeing them appear deeply interested in what I had said about farm matters in general, I ventured to wind up without addressing them in particular, and I do not know when I shall hear the last of it.

Another story for the ladies. One story, you know, is apt to lead to another. It is very short. When I was a boy, and my mother gave me pieces of pie, I always ate the crust first. That was to have the best last. And now, ladies of Worcester West, bless your hearts, for we all know that your hands have done well. While your fathers and brothers and husbands have achieved those wonderful improvements which we witness, on a once hard soil, you have discharged in-door duties, not less important, hardly less laborious, and requiring even greater skill and patience. And here let me close, by asking of your other halves, and of some, perhaps, anxious to become such, whether, after all their brag, you are not the best farmers among them? And as farming is a sort of a company business, not apt to succeed well under one owner, but more generally limited to two, I see not but its future prospects will depend quite as much upon the ladies' as upon the gentlemen's side of the house.

THE FARMER'S POSITION.

From an Address before the Worcester North Agricultural Society, Oct. 2, 1857.

BY JUSTUS TOWER.

You have come here to-day with your wives, your sons and daughters, to celebrate this most important, interesting and profitable anniversary.

It is but a few years since agricultural fairs became prominent in most of the counties of our State, and it is safe to say, that they have contributed more to our vigorous growth as a community, than all the golden treasures of California. They have awakened a spirit of inquiry in the minds of thousands of our farmers, and great good has been the result.

But it is not enough to see superior crops of grain and vegetables, the noble cow, the mammoth ox, or the well-proportioned steers. It is not enough to see the rich specimens of butter and cheese, the vase of flowers, the home-made carpet, or the bed spread, of variegated colors in squares and angles, the handiwork of mothers and daughters. We wish to see the face of the producer, and hear the story of his skill, that the less fortunate among us, who are just arousing from the old beaten paths of their fathers, may be encouraged, while they imbibe a spirit of improvement. These are some of the features of these gatherings, and there is great reason to hope that they will be the means of perpetuating the progressive spirit of agricultural improvement.

This leads me to speak of the position which the farmer should occupy, and how he should appreciate his own calling, as compared with the other avocations of life.

Who stands in so enviable a position as you, owners of the soil, and producers of bread? You feed the teeming thousands of our poulation, you supply their most pressing wants. Agriculture is indeed the basis of all our material relations. Three-fifths of the people of our country, or two million four hundred thousand of our free male population, are engaged in tilling the soil, and over three-fifths of the permanent wealth is in their hands. The prosperity of the country is based upon the prosperity of the owners and tillers of the soil. The annual agricultural products of the United States are estimated at over one thousand millions of dollars.

It is the progress of agriculture that calls for internal improvements. The sons of New England farmers emigrate West, clear up woodlands, break up extensive prairies, make them yield golden harvests, build up villages and cities, school-houses and churches; and then behold in their pathway westward, canals and railroads, lakes and navigable rivers, all made subservient to the farmer's wants. Thus the products of the West give an impulse to every eastern enterprise, and the success or failure of the crop, is the thermometer that marks the prosperity or adversity of individuals, communities and the whole country.

How truly then, is agriculture the mother of all arts, the foundation and basis of every other profession. And how important is the position which you as farmers occupy.

The mechanic and the manufacturer are intimately connected with the farmer. While the mechanic invents and builds machinery and implements, the manufacturer works the fabric which the farmer produces into a form in which it will best supply the comforts and the luxuries of civilized life.

Through the genius and skill of the mechanic, a grand revolution has been wrought in the implements of agriculture, during the last thirty years, and comparing our present facilities for cultivating the soil and for manufacturing, with what they were formerly, it is estimated that five-sixths of the manual labor is saved in producing the same results.

If we compare the old iron share and wooden mould-board plough in use in the days of our fathers, with the almost perfect forms of this most important implement now in use, we can hardly suppress our surprise at the progress made in this respect. And so with the harrow, the cultivator, the horse-rake, and the mowing and reaping machines. A man standing on an eminence in Rock county, Wisconsin, counted on the surrounding prairie, covered with wheat, no less than one hundred and sixty-four horse-power reaping machines, and one thousand men, women and children following after, gathering and binding in sheaves, at the rate of two hundred acres per hour.

On one farm in Illinois grew one thousand acres of wheat, and by the aid of twelve reaping machines it was all stacked up in five days.

With the old method of cutting by hand, it would have required an army of one hundred men for cradling it in the same time, and with the sickle it would have taken five hundred men. Thus we see the incalculable value of labor-saving implements and machinery to the agricultural interest.

Nor is this all the mechanic has done. Our manufacturing establishments are among the wonders of the age, and exemplify the power of mind in adding wealth to our country.

See, too, the railroad, the steamboat and the telegraph, as it heralds with lightning speed the news from city to city and continent to continent, all round the known world. Surely the ingenious mechanic is a benefactor of mankind. In every department of art, our prosperity is the result of labor and skill which are alike honorable and sure of their reward.

The idea prevails among our farmers that this rural life is one of drudgery, attended with toil and weariness. This may be the case with a certain class of farmers, who are never ready to do their work in season, and who, in consequence, can never do it well. But it is not necessarily so. The thriving farmer is more independent than a thriving man in any other profession. I would not admit a single exception. He who is already rich is independent so far as money can make him, but the owner of a good farm, well stocked, is rich in the true sense of the word. Nature's true nobleman, independent almost beyond a contingency. His stock is a living reality.

There is often a great mistake in the choice of a profession for our sons. The fault not unfrequently lies at the very door of the farmer himself, who is too apt to look upon farming as the least desirable of any occupation. In consequence of this distaste on the part of farmers, their sons very naturally come to dislike, or to cherish even a disgust for it.

The other professions are honorable, and indeed indispensable to the good of society. The preacher, " the messenger of peace and good will to men," the physician, the lawyer, act their part and fulfil the most important duties; and in the professions men rise to great eminence and usefulness, and we admire them for their learning and skill. But comparatively few rise to eminence in these professions, and they are all more or less crowded, especially those of law and medicine, where the inducements are so small, and the chances of success so uncertain, that it would be well for young men to stop and consider before they decide.

The greater rush of our young men is to a commercial life, and in this there is the greatest danger, the most shipwrecks of character and of fortune. With a superficial education, young men enter our cities with high hopes of success. But what are the facts? Our cities are already overrun with the young from the country, mostly farmer's sons. They enter the retailing or jobbing stores on small salaries, expecting some day to become princely merchants.

It will cost as much to educate a young man in a good jobbing store in the city, as to carry him prudently through college. Scenes of vice are constantly before the one and not before the other. Many are easily led astray, and the good habits learned at home are lost, while but few comparatively ever rise above the position of clerks, and what happens to those who do?

It has been ascertained to a certainty that of those who enter upon a commercial life, from ninety to ninety-five out of every hundred fail in business, while of those who become farmers, only about four in every hundred fail to succeed.

And why is this? In the first place, extravagant notions are entertained in the city. Men commence business with too small a capital, to sustain them, with high rents, a large retinue of clerks who sell, perhaps, without proper discrimination, and are very soon obliged to stop, bringing distress and disappointment upon themselves and others.

How different is the life of the farmer. What he produces will always bring money. He has no inducements to wild speculation, and he is free from the harrowing perplexities of commercial life.

The agricultural interest is paramount to all others, and the time has come when the State, and the whole country should manifest an interest in the promotion of agricultural science.

But in point of fact there is no part of all our national interests to which congress has shown less favor than to the advancement of agriculture and the arts of peace. A large proportion of the lands in the older States are worn out and comparatively unproductive. Our pastures, our meadows and tillage lands do not produce, on an average, more than one-half of what they are capable. What are the causes of this reduction in the fertility of our soils, and what is the remedy?

There has been a general indifference to the true interests of agriculture by those even who are making money at the expense of their farms, and investing it in banks and railroads, instead of in improvements on their lands. And then the western lands are so cheap and so accessible, that our young men emigrate instead of improving the old homestead, while most who do remain, own too much land to till well, and instead of dividing with a son, are inclined to buy out a neighbor who is willing to sell; and the result is, that the whole is sure to be miserably tilled. Again, men sometimes get tired of farming because poor farming won't pay. They rent their farms, and ask so high a rent that the tenant is under the necessity of skinning the farm to pay his rent, and even then comes off with the skin of his teeth. The want of capital properly expended on the farm in buildings and fences, and in the purchase of fertilizers, is another cause of the neglect of many of our farms. But perhaps the most prominent of all, is the want of proper encouragement on the part of farmers themselves to induce their sons to settle around them and become thorough and systematic farmers.

We have, however, many noble exceptions, and during the last twenty years great advancement has been made towards a better state of things; and this leads me to remark that the first and surest mode to remedy the condition of things alluded to above, is to diffuse a more thorough knowledge of the science and improved practices of agriculture.

In all other professions, when men are poorly qualified or unskilful, we condemn them and call them quacks, unfit to be patronized. There are more quacks in farming than in all the other professions put together, since too many are unwilling to change the old methods of farming. They are groping, as it were, in the dark, without an effort to advance to a higher standard of culture. My idea of a great, good and happy man, is that of a thoroughly educated and accomplished farmer.

The hope of progress in agriculture must rest upon the development of its science. Here is a wide and noble field of investigation for the young, and how few have devoted themselves to it. Take, for instance, the blights and diseases of vegetation, and if you have a taste for researches of this kind, the farmer has much for you to do; for if you could discover a remedy against the weavil or the fly which infests the wheat crop, you could save millions of bushels of wheat every year, and thus be a benefactor of mankind; or could you discover a remedy for the disease of the potato, your name would be immortalized. Come, then, to the rescue, and be assured that he who makes two blades of grass grow where one grew before, without impoverishing the soil, will have lived to some purpose.

FARMING IN SOME OF ITS INTELLECTUAL ASPECTS.

From an Address before the Norfolk Agricultural Society, Sept. 30, 1857.

BY ALVAN LAMSON.

I wish to say something of agricultural life in some of its intellectual aspects,—in other words, of reading and intellectual culture in the farmer. Do not misapprehend me. I am not going to insist that the farmer should be a man of many books, or engage in any abstruse studies,—that he should lose himself in the fog of metaphysics,—that he should become an adept in chemical or botanical science or geology, or be what is called literary. He has something else and something better to do than that, for he is eminently a doer. But a certain kind and amount of intellectual culture, you will agree with me in saying, he should possess, both for the pleasures and profit of knowledge.

Intellectual culture and reading—what, we may imagine some yet lingering specimen of the dark ages to ask, has the farmer to do with these—admitting that he has opportunity and time for them, which to a certain extent he has, in these days of books and libraries? How will they benefit him? In many ways. First, they will turn to account in his own occupation or art—in the greater productiveness of his labors, in better fruitage and more abundant harvests. Is there any doubt of this? As a general fact, may I not assert without fear of contradiction, that intelligent labor is more effective, accomplishes more, and is in every way attended with better results than unintelligent? I might take as an illustration, factory labor. If I am wrong, there are those here who can set me right; but I believe that I am authorized to assert that mind is not wholly without its use among the spindles even—that the best educated hands, other things being equal, are always preferred, and command the highest wages. And so it is in all the mechanical occupations. The reasons are obvious. A person accustomed to observe and think, to note facts and draw inferences, to conduct processes of reflection, accustomed not only to work, but to work understandingly, being acquainted not simply with the practical manipulations of his art, but with the principles and reasons of them, is of necessity more fertile in resources, is more to be relied on in critical emergencies, and more likely to hit upon improvements, and produce a work of finished excellence, than one who has never been taught to exercise his reasoning powers, and has barely knowledge enough to unite a broken thread, or load a gravel cart.

Intellect and intelligence are inventive. They devise new modes and suggest new applications of known principles. They turn to use the knowledge that exists in the world ; the accumulation of past centuries of labor and thought. They profit by recorded failure and success, for both are alike instructive. They do not repeat blunders. They do not attempt what carefully conducted experiment has demonstrated to be impracticable. They welcome each new discovery, and avail themselves of its aid. Ignorance always labors at disadvantage from not knowing what others have attempted, with or without a happy result, and from not exercising the reasoning and reflective powers. It is thus subjected to profitless labors, from which intelligence and thought are saved. What wonders has labor-saving machinery alone accomplished for the benefit and elevation of man, the alleviation of his sufferings, and augmentation of his comforts in modern days. Intelligence avails itself of its use, when practicable, and finds its reward. Ignorance plods in the old paths, and is left behind in the race. It cannot compete successfully with intelligence. That this is so in manufacturing, commercial and mechanical occupations, every one knows. There are exceptions, but this is the law. Is not the same true in agriculture ? As with success in war in modern times, knowledge and skill have more to do than mere muscular power, so it is, is it not, with the art exercised by the peaceful farmer, as well as with those exercised by the "lords of the spindle and the loom," the artisan and the mechanic? Will intelligence here not help a man? Will it save him from no vain labors, no harrassing disappointments? Has not the intelligent farmer the same advantage over the unintelligent as the intelligent manufacturer, merchant or mechanic over an ignorant competitor? Has he no need of shrewdness, no need of knowledge so useful to others? The nature and succession of crops, modes of culture, methods of increasing the productiveness of the earth; what is adapted to this situation and soil, and what to that; climate, the markets, has intelligence, calculation, knowledge, nothing to do with these? It has much, I should think. He who avails himself of the latest lights, discoveries and improvements, is in a better condition to succeed than one who is ignorant of them. What a difference in travel between the old lumbering method of stage-coaching and the present railway speed, comfort and ease. Is there not a similar difference in other things, between the old and the new? To maintain his relative position and succeed, a man, in these days, must know. The farmer must know. It has been said, that now, "bayonets think." So we may say, the hoe and the spade must think. Labor must know.

In some particulars, the old Roman agriculture has not been surpassed, if it has been equalled, by any efforts of modern times; and the reason assigned is, "because the greatest and wisest men among the Romans applied themselves to the study and practice of it." Pliny, alluding to the abundance of corn in Rome in ancient times, asks: "What was the cause of this fruitfulness? Was it because, in those times, the lands were cultivated by the hands even of generals; the earth, as it is natural to suppose, delighting to be ploughed with a share adorned with laurels, and by a ploughman who had been honored with a triumph? Or, was it because these men ploughed their fields with the same diligence that they pitched their camps, and secured their corn with the same care that they formed their armies for battle?" This was intelligent, careful and loving labor, and the ever grateful earth responded by pouring forth her rich treasures into its lap.

But I am not content with the general proposition that intelligent is superior to unintelligent labor, true as it is. There is at the present day,—most of it of recent origin,—what may be called an agricultural literature, embracing not simply the results of scientific research and analysis, by such men as Sir Humphrey Davy, Liebig, Johnston and others, great benefactors to the cause of agriculture, but the teachings of experience also, for the benefit of those who have no reverence for the demonstrations of science, believing them to be all moonshine,—of no more worth than a fog-bank for anchorage. We have in the Transactions and reports of societies and boards of agriculture, and the various agricultural journals, some of them very carefully edited, a sort of history of what is doing, and what has been done, to subdue wild nature and turn the earth into a garden. These alone furnish to the farmer much useful reading, which, besides its direct effect on practice, will serve to stimulate the mind, and help those who labor to labor in a hopeful, trusting spirit, which, next to intelligence, is what is most needed—labor in a trusting, hopeful spirit.

The friends of agriculture have been sometimes ready to despond, in view of the slow progress of the art of cultivating the soil, and the difficulty of introducing new ideas and new modes of culture; practical agriculturists, as a body, being, it is asserted, "more opposed to change than any other large class of the community." And yet the history of agriculture, for the last half or three-quarters of a century, will show great and substantial progress. If it be true, that men have been slow to adopt changes in modes of tillage and articles of food, it is equally true that perseverance has in the end conquered. I will take an illustration from the history of that common vegetable, the potato, for the time blighted, but not lost. This, as all know, is indigenous to the western continent, and I will allude to the difficulty of its introduction into Europe as an article of food for man, simply for the purpose of showing how much may be accomplished by earnest and patient effort. It has been supposed, erroneously, I believe, that Sir Walter Raleigh first carried this vegetable from Virginia to Europe, about the end of the sixteenth century. It is a native, however, of South America, and was earlier known to the Spaniards, who were probably its first importers into the old world. It met with a various reception in different parts of Europe. As early as 1587 potatoes were common in Italy, where they were used as food for cattle. The natives of the "Green Isle," however, were among the first, it would seem, to give them a hearty welcome, and hence at an early period we find them called "Irish potatoes." France began by proscribing them. In Burgundy, they were denounced for their supposed tendency to produce "leprosy." It required two centuries to overcome "puerile prejudices" against them. The "old physicians," from time to time, reiterated their charges against them. Dismissing the accusation that leprosy came from the use of them—facts proving its absurdity—they still persisted in asserting that they were prejudicial to health. They produced "fevers," it was said. The epidemics caused by famine were attributed to the use of potatoes. But there came a man of science, and a philanthropist, M. Parmentier, by name, who had learned their value in the prisons of Germany, where he frequently had no other food, who, encouraged by government, made a chemical examination of the tuber, and showed that none of its component parts were injurious. Not succeeding in overcoming the prejudice in this way, he resorted to a sort of finesse to accomplish his object. "To induce the common people to take a liking to potatoes," says Cuvier, in his eulogy, pronounced before the French Institute, in 1815, "he cultivated them in spots which were much frequented, causing them to be guarded with great care during the day only; and was well pleased, if he thus induced people to steal them by night. He could have wished that the king might, as is related of the emperors of China, have turned the first furrow of his field. His majesty deigned, at least, to wear, in full court, in the day of a solemn *fete*, a bouquet of potato blossoms in his button hole." This, of course, succeeded. The nobility from that time began to plant potatoes. The philosopher, M. Parmentier, declares that he himself once "gave a dinner consisting only of potatoes, with twenty different sauces, and at which the appetite did not repine." He labored forty years, in every possible way, to overcome the prejudice against their use. So bitter was the feeling awakened against him on this account, that when, during a certain period of the Revolution, he was proposed for some municipal office, one of the voters opposed the choice with violence, assigning as a reason: "He will make us eat nothing but potatoes; it is he who invented them." Before his death, however, he was able to exclaim: "The potato has now none but friends." Singular enough, it has been made a question, in recent days, whether the introduction of the potato into Europe has been, on the whole, a blessing or a curse. The late famine in Ireland has been attributed, by certain writers, to the abandonment of the cereal grains for the culture of the potato. Take, on the other side, the language of the author I have just quoted, M. Cuvier: "Is it not evident to all the world that the perseverance with which the propagation of the potato was urged [in France], has fertilized and rendered habitable entire districts formerly barren, and has saved us from the horrors of famine twice within twenty years?"

It is a note-worthy fact that a similar, though not equally violent opposition, has been made to the use of our "great indigenous *cereal*," Indian corn, in Europe, this being pronounced not unhealthy, but only not eatable. The other of the three great gifts of the new to the old world was, so far as I know, accepted without opposition, the flavor of the turkey being regarded as something more than an American notion. But Indian corn the Irish could not, without great difficulty, be induced to use during the famine. Some of the central governments of the continent, convinced of its value as an article of food, have labored to persuade the people that it may be made palatable. A portion of their experiments are not a little amusing, and the Prussian report pronounces that "bread similar to the American would not be to the taste of our public." They prefer rye and potatoes, the food of the common people of Germany. Efforts to render Indian corn acceptable, however, are not abandoned. No doubt they will succeed in the end, and the more northerly countries of Europe, where this cereal will not ripen, will, at a future period, open a rich market for the superfluous produce of the great corn-growing regions of the United States. History teaches lessons of encouragement. Difficulties, as we see, are one after another overcome. Ideas, seemingly at first totally irreconcilable with the prevailing and household usages of a people, come at length to be hospitably entertained, and progress is made. There is progress ever.

Before an audience like that which at present surrounds me, I need not speak of the improvements in agriculture among ourselves, including labor-saving implements, modes of tillage, stock and crops, which the last half century has witnessed.

They are patent to every eye which can look back fifty years, or which has access to the agricultural literature of the period. Despair of progress is a phrase which should not be found in the dictionary of the farmer. Every tree, leaf, shrub and flower, and all experience of the past, read him a homily on hope, if he will listen to it.

The old Agricultural Society of Massachusetts, the oldest State society of this kind among us, and second in time only to the Philadelphia Society, was incorporated in 1792, under the name of the "Massachusetts Society for Promoting Agriculture." When I look into the publications of that society, among the members of which I read the names of the greatest and wisest men of the day in our Commonwealth,—when I learn the difficulties contended against, the ignorance and prejudices which were to be combatted,—when I consider how much they really performed,—when I compare the agriculture of their day with that of our own, various emotions fill my breast. I am impressed with the sterling merit of the men and the worth of their contributions to the cause of American agriculture. I am impressed, too, with the changes which fifty years have brought with them, and with the value of our agricultural literature, scanty as it is. Above all, I am impressed with the grand motives to labor and perseverance in this great cause. I read on every page of those publications lessons of encouragement and hope. When I reflect on the lights which science has since set up to conduct the practical agriculturist on his way, I feel that it would be dishonorable in us to sit down in sluggish content, breathing no prayer and putting forth no hand for the furtherance of a work so intimately connected with the earthly well-being and happiness of man. The cause of agriculture is eminently the cause of humanity. Seven-eighths of the population of most civilized nations, it is computed, are engaged in it, and it mainly feeds the inhabitants of the globe, estimated at more than a thousand and fifty millions.*

I have spoken of an acquaintance with books, and especially with the history and science of agriculture, as affording aid and encouragement to the farmer in his own chosen field of labor. I must now allude briefly to some other benefits of intellectual culture and reading in the farmer. Whether or not they increase his harvests, they add dignity and worth to his character. Connected with moral elevation,—right principle, honor, integrity, they crown a country life, and render the cultivator of the soil one of the real lords of the earth,—not the slave of toil, but a ruler, fulfilling the original command to "subdue" and "have dominion."

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* 1,050,139,403.

These qualities it is,—qualities strictly personal, not any outside show—a kid glove or French boot,—which make a man, a free, independent, thinking man, a man who is something in and of himself,—something he can himself respect, and which commands respect from others. A man of simple tastes and habits, your good and well-educated farmer will be—this is to his praise. No enemy to the exercise of a little plain, round-about common sense in any and every thing,—one who has some steadiness and balance of mind,—who is not dazzled by the glare of false rhetoric,—not to be led astray by "sounding brass," he is too much a man of realities, too much accustomed to deal with sturdy facts for that,—not a man to be conducted blindfold by empty theorists,—not a slave to the frivolities of fashion,—not a changeling,—he must see a reason for what he does,—see firm footing on the solid earth. He is a working man, but not a mere instrument—a piece of mechanism; he is intelligent, he observes, he reasons, his head is not idle or unfurnished; all his faculties are brought into sound and healthful exercise. He is no puny sentimentalist; he is a man of robust principles, and throughout practical; he has faith in well-doing as well as in well-being,—is a believer in God, in truth, in honor and right, a lover of order, a friend to his country, and a friend to humanity. In one marked by such qualities, we recognize the true type of a man,—dignity and elevation of soul. It matters not what is his external position, or what his occupation is; he may be a tiller of the soil or any thing else,—he is still one of God's noblemen. He is not a mere conventional man,—he is a man in his own and nature's right, not an imitation of humanity, but the embodiment of humanity itself.

> "He walks in glory and in joy,
> Following his plough along the mountain side."

Do I exaggerate? Am I uttering words of mere rhetoric? The final purpose of all the arrangements of Providence in this lower world, as I conceive, is to perfect man himself. It is not merely to multiply the comforts of his physical condition,—to call forth material beauty and fragrance,—to adorn the earth, but to elevate man as man,—to develop his nobler faculties, his intellect, his affections, his tastes, his capacity for the enjoyments of a nature formed but a "little lower than the angels." This is the purpose of all. In the shop of the artisan, the great marts of trade, and on the farm, man is to educate himself,—his reason, his human sensibilities, his reverence for truth and right—and this is the noblest husbandry—this work, the crowning work,—not incompatible, I contend, with labor of the hands, but of which well-organized and well-directed, intelligent and free labor is one of the heavenly ordained instrumentalities.

The elevating influence of knowledge and intellectual culture is not all. They enhance the enjoyments of life, especially among an agricultural population, because they teach one to read and interpret nature,—prepare him to observe and think; and so many-sided is nature,—so marvellous, if one will look beneath the surface,—so full of mystery, so wonderful are the phenomena which, in the country, daily fall under the eye, connected with the processes of animal and vegetable life, growth and decay, the expansion of the flower and ripening of the fruit, with the vicissitudes of the seasons,—budding spring and myriad-tinted autumn, with the rising and setting sun, with air, and clouds, and dew, with light and shade, varying with the varying hours, that materials for a pleasing occupation of the thoughts can never be wanting, if only the powers of observation and reflection have been once awakened. Nowhere and in no situation will a cultivated intellect contribute more, in Lord Bacon's phrase, to the "relief of man's estate," or more enlarge the sphere of sober, calm delights. The country is barren of pleasures to those who bring to it barrenness of thought, and to such only. Take the single faculty of observation, attention,—how much depends on that! People engaged in rural occupations have been charged with insensibility to the charms of nature. They move on, it is said with a dull eye. The loveliest spot is, to them but common earth, valued for its productiveness only. Amid the most beautiful creations of the Almighty's hand they are conscious, it is asserted, of no kindling emotion,—no admiring thoughts.

The charge is probably exaggerated. I hope it is. But whatever insensibility of this sort exists, it is to be attributed, due allowance being made for the effect of familiarity, to want of intellectual culture, especially culture of the two faculties of observation and reflection. The habit of observation lies at the foundation of the pleasures of a country life, as in fact, of improvement of every kind. Yet in nothing do persons more differ than in the degree of activity of this faculty. There are those who never observe accurately,—never see, unless a penny is to be turned,—and whose minds are never, therefore, open to the sweet influences of nature. The sun rises and sets, lights and shadows vary and blend to infinitude almost, the green earth smiles, the clouds assume their gorgeous forms and hues, the seasons fill their circle, and processes full of marvels are incessantly going on, but it is all the same with the unobservant mind. There is no enjoyment of nature, because the faculty of attention has never been awakened; the habit of observation has never been formed. This must be cultivated, and reflection will follow, and where these exist the farmer's life can never be barren of pleasures. He can never want occupation for his thoughts; phenomena, which are perpetually taking place within range of his vision, will stimulate his curiosity; the pleasures of taste will be his, and the delights of knowledge will kindle in his eye. Intellectual will blend with moral and religious pleasures, for nature, to the seeing eye and thinking mind, is full of God.

There is nothing,—not the simplest and most familiar of nature's processes, which, to the full mind, is incapable of affording pleasure, if a little attention and thought are bestowed upon it. Take as an illustration the fall of the dew. What sweet images are connected with it in the poetry of all nations,—in sacred and common literature! And how beautiful is the provision made for its descent, and its deposit where most needed! Do you say that it lights on the barren as readily as on the fertile spot,—on particles of sterile sand as abundantly as on the green earth and the drooping leaf? No, it does not. A more beneficent law is concerned in its formation. As the air cools off in the absence of the sun, a portion of the watery vapor it has hitherto held suspended, "descends in particles almost infinitely minute," collecting on "every leaflet," and suspending themselves from every blade of grass in "drops of pearly dew." But "mark," says a scientific writer, "the adaptation. Different substances are endowed with the property of radiating their heat, and of becoming cool with different degrees of rapidity, and those substances which in the air become cool first, also attract first and most abundantly the particles of falling dew. Thus in the cool of a summer's evening, the grass plot is wet, while the gravel walk is dry; and the thirsty pastures and every green leaf are drinking in the descending moisture, while the naked land and the barren highway are still unconscious of its fall." This is only one of the thousand illustrations which might be offered of the pleasures with which knowledge and an awakened curiosity reward those who live in daily communion with nature and her phenomena,—ever old, yet ever fresh and new.

So homely a process as digging a ditch for drainage or fuel, may furnish matter of very profound thought. The other day there were thrown up in Charles River meadows perfect cones of the fir or spruce, many feet below the surface, which may have lain there thousands of years, and probably had,—from the time of Abraham perhaps, or before. Above, inviting the eye, was the delicate flower of the arrow head. Here they were the modest white flower blooming above, and the buried relics of the old forests lying beneath, witnesses of the silent revolutions which time effects, while human generations and tribes appear and vanish, and of their labors not a vestige remains. How little is man in the presence of God, with whom "one day is as a thousand years, and a thousand years as one day!"

To confine ourselves to the surface of the earth, the history of the grasses, and especially our native grasses, presents some curious phenomena. Jared Eliot, in his "Essays on Field Husbandry," published in 1747, republished in the Massachusetts Agricultural Journal in 1811, speaks of a grass with an "odd name," as he expresses it,—"Fowl Meadow Grass,"—in connection with Dedham. The name undoubtedly originated here. Such has been the constant tradition of the place. I will add two historical references, which I do not find in any of the recent notices of this grass which have fallen under my eye. Hutchinson, in his History of Massachusetts, published in 1760, says: "There is a tradition that the grass called fowl meadow grass, which is superior to any other grass of the fresh water meadows, was first brought to the meadows in Dedham by a large flight of wild fowls, and that from thence the grass, and the meadows where it was first discovered, and from whence it has been communicated to many parts of the country, took their names." Vol. 1, p. 425. Dr. Nathaniel Ames, Sen., the celebrated almanac maker, father of Fisher Ames, in his Almanac for 1764, adds the date,—not very precise, however,—of the supposed introduction of the grass here. He says: "The famous fowl meadow grass was brought into a spacious meadow on Neponset River, by the wild fowl which frequent that place, where it first made its appearance about fifty years ago," that is, about the beginning of the last century. "The seed is now collected," he adds, "and carried into various parts of the country."

In a multitude of ways intelligence adds greatly to the satisfaction of country labor; it lightens its burdens, relieves its tediousness, and renders it not more, but less distasteful." William Howitt, in his book on "The Rural Life of England," reports the following reply of a "farming man," of some intellectual culture, to the question, "whether reading did not render him less satisfied with his daily work." "Before he read," he says, "his work was weary to him; for in solitary fields, an empty head measured the time out tediously to double its length; but now, no place was so sweet as the solitary fields; he had always something pleasant floating across his mind; and the labor was delightful and the day only too short." He subsequently adds: "The study of nature is not only the most delightful, but the most elevating. This will be true in every station of life. But how much more ought the poor man to prize this study! which, if prized and pursued as it ought, will enable him to bear with patient resignation and cheefulness, the lot by Providence assigned to him. O, sir, I pity the working man who possesses not a taste for reading, which will enable him, while he participates in intellectual enjoyment, to prize, as he ought, his character as a man in every relative duty of life."

I have thus spoken, not as I would, but as I could, within the limits I have prescribed to myself in this address, of the advantages of reading and intellectual culture in a farming population. I have said that the labor attended with the best results is intelligent labor,—that what may be called an agricultural literature embodying scientific principles and their application, facts and experiments, success and failure,—what has been attempted and what accomplished, will in different ways be turned to account, guiding, aiding, stimulating, inspiring courage and hope. I have spoken of education and knowledge not only as dignifying labor, but as promoting true manliness and elevation of character,—and lastly, of their influence in enhancing the pleasures of a country life, teaching habits of observation and thought, which will render communion with nature, in her daily processes and phenomena, a source of ever varying and fresh delight. Much more might be said, but I forbear.

All honor to labor! Honor to him who, in patience and a trusting spirit, performs his allotted work, and improves in it, doing better to-day than he did yesterday, finishing and perfecting what is given him to do, and above all, perfecting himself. To the fowls of the air and the lilies of the field only is it appointed to sow not, nor to gather into barns, to toil not, nor to spin; to man is assigned great labors, but through them dominion and a crown.

SYSTEM OF AGRICULTURAL EDUCATION.

An Address before the Barnstable Agricultural Society, Oct. 8, 1857.

BY GEO. S. BOUTWELL.

In the month of February, 1855, a distinguished American, who has read much, and acquired, by conversation, observation and travels in this country and Europe, the highest culture of American society, wrote these noticeable sentences: "The farmers have not kept pace, in intelligence, with the rest of the community. They do not put brain manure enough into their acres. Our style of farming is slovenly, dawdling and stupid, and the waste, especially in manure, is immense. I suppose we are about, in farming, where the lowlands of Scotland were fifty years ago; and what immense strides agriculture has made in Great Britain since the battle of Waterloo, and how impossible it would have been for the farmers to have held their own without."*

It would not be civil for me to indorse these statements as introductory to a brief address upon Agricultural Education; but I should not accept them at all did they not contain truth enough to furnish a text for a layman's discourse before an assembly of farmers.

Competent American travellers concur in the opinion, that the Europeans generally, and especially our brethren of England, Ireland and Scotland, are far in advance of us in scientific and practical agriculture. This has been stated or admitted by Mr. Colman, President Hitchcock, and last by Mr. French, who has recently visited Europe under the auspices of the National Agricultural Society.

There are good reasons for the past and for the existing superiority of the old world; and there are good reasons, also, why this superiority should not much longer continue. Europe is old,—America is young. Land has been cultivated for centuries in Europe, and often by the same family; its capacity tested, its fitness or unfitness for particular crops proved, the local and special effects of different fertilizers well known, and the experience of many generations has been preserved so as to be equivalent to a like experience, in time and extent, by the present occupants of the soil.

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* Hon. George S. Hillard.

In America there are no family estates nor long occupation by the same family of the same spot. Cultivated lands have changed hands as often as every twenty-five years from the settlement of the country. The capacity of our soils to produce, when laboriously and systematically cultivated, has not been ascertained; there has been no accumulation of experience by families, and but little by the public, and the effort, in many sections, has been to draw as much as possible from the land while little or nothing was returned to it. Farming, as a whole, has not been a system of cultivation, which implies improvement, but a process of exhaustion. It has been easier for the farmer, though perhaps not as economical if all the elements necessary to a correct opinion could be combined, to exchange his worn-out lands for fresh soils, than to adopt an improving system of agriculture. The present has been consulted, the future has been disregarded. As the half-civilized hunters of the pampas of Buenos Ayres make indiscriminate slaughter of the myriads of wild cattle that roam over the unfenced prairies of the south, and preserve the hides only for the commerce and comfort of the world, so we have clutched from nature whatever was in sight or next at hand, regardless of the actual and ultimate wrong to physical and vegetable life; and as the pioneers of a better civilization now gather up the bones long neglected and bleaching under tropical suns and tropical rains, and by the agency of trade, art and industry, extort more wealth from them than was originally derived from the living animals, so we shall find that worn-out lands, when subjected to skilful, careful, scientific husbandry, are quite as profitable as the virgin soils, that, from the day of the migration into the Connecticut Valley to the occupancy of the Missouri and the Kansas, have proved so tempting to our ancestors and to us. But there has been some philosophy, some justice and considerable necessity in the course that has been pursued. Subsistence is the first desire; and in new countries where forests are to be felled, dwellings erected, public institutions established, roads and bridges built, settlers cannot be expected, in the cultivation of the land, to look much beyond the present moment. And they are entitled to the original fertility of the soil. Europe passed through the process of settlement and exhaustion many centuries ago. Her recovery has been the work of centuries,—ours may be accomplished in a few years, even within the limits of a single life. The fact from which an improving system of agriculture must proceed, is apparent in the Northern and central Atlantic States, and is, in a measure, appreciated in the West. We have all heard that certain soils were inexhaustible. The statement was first made of the valley of the Connecticut, then of the Genessee country, then of Ohio, then of Illinois, and occasionally we now hear similar statements of Kansas, or California, or the valley of the Willamette. In the nature of things these statements were erroneous. The idea of soil, in reason and in the use of the word, contains the idea of exhaustion. Soil is not merely the upper stratum of the earth; it is a substance which possesses the power, under certain circumstances, of giving up essential properties of its own for the support of vegetable and ultimately of animal life. What it gives up it loses, and to the extent of its loss it is exhausted. It is no more untrue to say that the great cities of the world have not, in their building, exhausted the forests and the mines to any extent, than to say that the annual, abundant harvests of corn and wheat have not, in any degree, exhausted the prairies and bottom lands of the West. Some lands may be exhausted for particular crops in a single year; others in five years, others in ten, while others may yield undiminished returns for twenty, fifty, or even a hundred years. But it is plain that annual cropping without rotation, and without compensation by nature or art, must finally deprive the soil of the required elements. Nor should we deceive ourselves by considering only those exceptions whose existence is due to the fact that nature makes compensation for the loss. Annual or occasional irrigation with rich deposits,—as upon the Nile and the Connecticut,—allowing the land to lie fallow, rotation of crops and the growth of wood, are so many expedients and provisions by which nature increases the productiveness of the earth. Nor is a great depth of soil, as two, five, ten or twenty feet, any security against its ultimate impoverishment. Only a certain portion is available. It has been found in the case of coal mines which lie at great depths, that they are, for the present, valueless, and we cannot attach much importance to soil that is twenty feet below the surface. Neither cultivation nor vegetation can go beyond a certain depth, and wherever vegetable life exists its elements are required and appropriated. Great depth of soil is desirable, but with our present knowledge and means of culture it furnishes no security against ultimate exhaustion.

The fact that all soils are exhaustible establishes the necessity for agricultural education, by whose aid the processes of impoverishment may be limited in number and diminished in force; and the realization of this fact by the public generally, is the only justification necessary for those who advocate the immediate application of means to the proposed end.

And, gentlemen, if you will allow a festive day to be marred by a single word of criticism, I feel constrained to say, that a great obstacle to the increased usefulness, further elevation and higher respectability of agriculture, is in the body of farmers themselves. And I assume this to be so upon the supposition that agriculture is not a cherished pursuit in many farmers' homes; that the head of the family often regards his life of labor upon the land as a necessity from which he would willingly escape; that he esteems other pursuits as at once less laborious, more profitable and more honorable than his own; that children, both sons and daughters, under the influence of parents, both father and mother, receive an education at home, which neither school, college, nor newspaper can counteract, that leads them to abandon the land for the store, the shop, the warehouse, the professions or the sea.

The reasonable hope of establishing a successful system of agricultural education is not great where such notions prevail.

Agriculture is not to attain to true practical dignity by the borrowed lustre that eminent names, ancient and modern, may have lent to it, any more than the earth itself is warmed and made fruitful by the aurora borealis of an autumn night. Our system of public instruction, from the primary school to the college, rests mainly upon the public belief in its importance, its possibility and its necessity. It is easy on a professional holiday to believe in the respectability of agriculture ; but is it a living sentiment, controlling your conduct and inspiring you with courage and faith in your daily labor? Does it lead you to contemplate with satisfaction the prospect that your son is to be a farmer also, and that your daughter is to be a farmer's wife? These, I imagine, are test questions which not all farmers nor farmers' wives can answer in the affirmative. Else, why the custom among farmers' sons, of making their escape, at the earliest moment possible, from the labors and restraints of the farm? Else why the disposition of the farmer's daughter to accept other situations, not more honorable, and in the end not usually more profitable, than the place of household aid to the business of the home? How then can a system of education be prosperous and efficient, when those for whom it is designed neither respect their calling nor desire to pursue it? You will not, of course, imagine that I refer, in these statements, to all farmers ; there are many exceptions ; but my own experience and observation lead me to place confidence in the fitness of these remarks, speaking generally of the farmers of New England. It is, however, true, and the statement of the truth ought not to be omitted, that the prevalent ideas among us are much in advance of what they were ten years ago. In what has been accomplished we have ground for hope, and even security for further advancement.

I look, then, first and chiefly to an improved home culture, as the necessary basis of a system of agricultural education. Christian education, culture and life depend essentially upon the influences of home, and we feel continually the importance of kindred influences upon our common school system.

It will not, of course, be wise to wait in the establishment of a system of agricultural education until we are satisfied that every farmer is prepared for it ; in the beginning sufficient support may be derived from a small number of persons ; but in the end it must be sustained by the mass of those interested. Other pursuits and professions must meet the special claims made upon them, and in the matter of agricultural education, they cannot be expected to do more than assent to what the farmers themselves may require.

An important part of a system of agricultural education, has been, as it seems to me, already established. I speak of our national, state, county and town associations for the promotion of agriculture. The first three may educate the people through their annual fairs, by their publications, and by the collection and distribution of rare seeds, plants and animals that are not usually within reach of individual farmers. By such means, and others less noticeable, these agencies can exert a powerful influence upon the farmers of the country; but their thorough, systematic education must be carried on at home. And for local and domestic education, I think we must rely upon our public schools, upon town clubs or associations of farmers, and upon scientific men who may be appointed by the government to visit the towns, confer with the people, and receive and communicate information upon the agricultural resources and defects of the various localities. It will be observed that in this outline of a plan of education I omit the agricultural college. This omission is intentional and I will state my reasons for it. I speak, however, of the present; the time may come when such an institution will be needed. In Massachusetts, Mr. Benjamin Buzzey has made provision for a college at Roxbury, and Mr. Oliver Smith has made similar provision for a college at Northampton; but these bequests will not be available for many years. In England, Ireland, Scotland, France, Belgium, Prussia, Russia, Austria and the smaller states of Europe, agricultural schools and colleges have been established, and they appear to be the most numerous where the ignorance of the people is the greatest. England has five colleges and schools, Ireland sixty-three, while Scotland has only a professorship in each of her colleges at Aberdeen and Edinburgh. In France, there are seventy-five agricultural schools; but in seventy of them,—called inferior schools,—the instruction is a compound of that given in our public schools and the discipline of a good farmer upon his land, with some special attention to agricultural reading and farm accounts. Such schools are not desired, and would not be patronized among us. When an agricultural school is established, it must be of a higher grade,—it must take rank with the colleges of the country. President Hitchcock, in his report, published in 1851, states that six professors would be required, that the first outlay would be sixty-seven thousand dollars, and that the annual expense would be six thousand and two hundred dollars. By these arrangements and expenditures he contemplates the education of one hundred students who are to pay annually each for tuition the sum of forty dollars. It was also proposed to connect an agricultural department with several of the existing academies at an annual expense of three thousand dollars more. These estimates of cost seem low, nor do I find in this particular any special objection to the recommendation made by the commissioners of the government; any other scheme is likely to be quite as expensive in the end.

My chief objection is, that his plan is not comprehensive enough, and cannot, in a reasonable time, sensibly affect the average standard of agricultural learning among us. The graduation of fifty students a year would be equal to one in a thousand or fifteen hundred of the farmers of the State; and in ten years there would not be one professionally educated farmer in a hundred. We are not, of course, to overlook the indirect influence of such a school, through its students annually sent forth. The better modes of culture adopted by them would, to some extent, be copied by others; nor are we to overlook the probability of a prejudice against the institution and its graduates, growing out of the republican ideas of equality prevailing among us. But the struggle against mere prejudice would be an honorable struggle, if, in the hour of victory, the college could claim to have reformed and elevated materially the practices and ideas of the farmers of the country. I fear that even victory under such circumstances would not be complete success. An institution established in New England must look to the existing peculiarities of our country, rather than venture at once upon the adoption of schemes that may have been successful elsewhere. Here every farmer is a laborer himself, employing usually from one to three hands, and they are often persons who look to the purchase and cultivation of a farm on their own account; while in England the master farmer is an overseer rather than a laborer. The number of men in Europe who own land or work it on their own account is small; the number of laborers, whose labors are directed by the proprietors and farmers, is quite large. Under these circumstances, if the few are educated, the work will go successfully on; while here, our agricultural education ought to reach the great body of those who labor upon the land. Will a college in each State answer the demand for agricultural education now existing? Is it safe in any country or in any profession or pursuit, to educate a few and leave the majority to the indirect influence of the culture thus bestowed? And is it philosophical, in this country, where there is a degree of personal and professional freedom such as is nowhere else enjoyed, to found a college or higher institution of learning upon the general and admitted ignorance of the people in the given department? or is it wiser by elementary training and the universal diffusion of better ideas, to make the establishment of the college the necessity of the culture previously given? Every new school, not a college, makes the demand for the college course greater than it was before; and the advance made in our public schools increases the students in the colleges and the university. We build from the primary school to the college, and without the primary school and its dependents,—the grammar, high school and academy,—the colleges would cease to exist. This view of education supports the statement that an agricultural college is not the foundation of a system of agricultural training, but a result that is to be reached through a preliminary and elementary course of instruction. What shall that course be? I say, first, the establishment of town or neighborhood societies of farmers and others interested in agriculture. These societies ought to be auxiliary to the county societies, and they never can become their rivals or enemies unless they are grossly perverted in their management and purposes. As such societies must be mutual and voluntary in their character, they can be established in any town where there are twenty, ten, or even five persons who are disposed to unite together. Its object would, of course, be the advancement of practical agriculture, and it would look to theories and even to science as means only for the attainment of a specified end. The exercises of such societies would vary according to the tastes and plans of the members and directors; but they would naturally provide for discussions and conversations among themselves, lectures from competent persons, the establishment of a library, and for the collection of models and drawings of domestic animals, models of varieties of fruit, specimens of seeds, grasses and grains, and rocks, minerals and soils. The discussions and conversations would be based upon the actual observation and experience of the members; and agriculture would at once become better understood and more carefully practised by each person who intended to contribute to the exercises of the meetings.

Until the establishment of agricultural journals, there were no means by which the results of individual experience could be made known to the mass of farmers; and even now, men of the largest experience are not the chief contributors.

Wherever a local club exists, it is always possible to compare the knowledge of the different members, and the results of such comparison may, when deemed desirable, be laid before the public at large. It is also in the power of such an organization thoroughly and at once to test any given experiment. The attention of this section of the country has been directed to the culture of the Chinese sugar cane; and merchants, economists and statesmen, as well as the farmers themselves, are interested in the speedy and satisfactory solution of so important an industrial problem. Had the attention of a few local societies in different parts of New England been directed to the culture, with special reference to its feasibility and profitableness, a definite result might have been reached the present year. The growth of flax, both in the means of cultivation and economy, is a subject of great importance. Many other crops might also be named, concerning which opposite, not to say vague, opinions prevail. The local societies may make these trials, through the agency of individual members, better than they can be made by county and state societies, and better than they can usually be made upon model or experimental farms. It will often happen upon experimental farms that the circumstances do not correspond to the condition of things among the farmers. The combined practical wisdom of such associations must be very great; and I have but to refer to the published minutes of the proceedings of the Concord Club to justify this statement in its broadest sense. The meetings of such a club have all the characteristics of a school of the highest order. Each member is at the same time a teacher and a pupil. The meeting is to the farmer what the court room is to the lawyer, the hospital to the physician, and the legislative assembly to the statesman.

Moot courts alone will not make skilful lawyers, the manikin is but an indifferent teacher of anatomy, and we may safely say that no statesman was ever made so by books, schools and street discussions without actual experience in some department of government.

It is, of course, to be expected that an agricultural college would have the means of making experiments; but each experiment could be made only under a single set of circumstances, while the agency of local societies, in connection with other parts of the plan that I have the honor diffidently to present, would convert at once a county or a state into an experimental farm for a given time and a given purpose. The local club being always practical and never theoretical, dealing with things always and never with signs, presenting only facts and never conjectures, would, as a school for the young farmer, be quite equal, and in some respects superior, to any that the government can establish. But, it may be asked, will you call that a school which is merely an assembly of adults without a teacher? I answer that, technically, it is not a school; but that in reality such an association is a school in the best use of the word. A school is, first, for the development of powers and qualities whose germs already exist; then for the acquisition of knowledge previously possessed by others; then for the prosecution of original inquiries and investigations. The associations of which I speak would possess all these powers and contemplate all these results; but that their powers might be more efficient and for the advancement of agriculture generally, it seems to me fit and proper for the State to appoint scientific and practical men as agents of the Board of Agriculture and lecturers upon agricultural science and labor. If an agricultural college were founded, a farm would be required, and at least six professors would be necessary. Instead of a single farm, with a hundred young men upon it, accept gratuitously, as you would no doubt have opportunity, the use of many farms for experiments and repeated trials of crops, and at the same time educate, not a hundred only, but many thousand young men, nearly as well in theory and science, and much better in practical labor, than they could be educated in a college. Six professors, as agents, could accomplish a large amount of necessary work; possibly, for the present, all that would be desired. Assume, for this inquiry, that Massachusetts contains three hundred agricultural towns; divide these towns into sections of fifty each; then assign one section to each agent, with the understanding that his work for the year is to be performed in that section, and then that he is to be transferred to another. By a rotation of appointments and a succession of labors, the varied attainments of the lecturers would be enjoyed by the whole Commonwealth. But, it may be asked, what, specifically stated, shall the work of the agents be? Only suggestions can be offered in answer to this inquiry. An agent might, in the summer season, visit his fifty towns and spend two days in each. While there, he could ascertain the kinds of crops, modes of culture, nature of soils, practical excellences and practical defects of the farmers; and he might also provide for such experiments as he desired to have made. It would, likewise, be in his power to give valuable advice, where it might be needed, in regard to farming proper, and also to the erection and repair of farm buildings. I am satisfied that a competent agent would, in this last particular alone, save to the people a sum equal to the entire cost of his services. After this labor was accomplished, eight months would remain for the preparation and delivery of lectures in the fifty towns previously visited. These lectures might be delivered in each town, or the agent might hold meetings of the nature of institutes in a number of towns centrally situated. In either case, the lectures would be at once scientific and practical; and their practical character would be appreciated in the fact that a judicious agent would adapt his lectures to the existing state of things in the given locality. This could not be done by a college, however favorably situated, and however well accomplished in the material of education. It is probable that the lectures would be less scientific than those that would be given in a college; but when their superior practical character is considered, and when we consider also that they would be listened to by the great body of farmers, old and young, while those of the college could be enjoyed by a small number of youth only, we cannot doubt which would be the most beneficial to the State and to the cause of agriculture in the country.

An objection to the plan I have indicated, may be found in the belief that the average education of the farmers is not equal to a full appreciation of the topics and lectures to be presented. My answer is, that the lecturers must meet the popular intelligence, whatever it is. Nothing is to be assumed by the teacher;

it is his first duty to ascertain the qualifications of his pupils. I am, however, led to the opinion that the schools of the country have already laid a very good basis for practical instruction in agriculture; and if this be not so, then an additional argument will be offered for the most rapid advance possible in our systems of education. In any event, it is true that the public schools furnish a large part of the intellectual culture given in the inferior and intermediate agricultural schools of Europe.

The great defect in the plan I have presented is this: That no means are provided for the thorough education needed by those persons who are to be appointed agents, and no provision is made for testing the qualities of soils and the elements of grains, grasses and fruits. My answer to this suggestion is, that it is in part, at least, well-founded; but that the scientific schools furnish a course of study in the natural sciences which must be satisfactory to the best educated farmer or professor of agricultural learning, and that analyses may be made in the laboratories of existing institutions.

It is my fortune to be able to read a letter from Prof. Horsford, which furnishes a satisfactory view of the ability of the Scientific School at Cambridge.

CAMBRIDGE, Sept. 19, 1857.

My Dear Sir:—The occupation incident to the opening of the term has prevented an earlier answer to your letter of inquiry in regard to the Scientific School.

The Scientific School furnishes, I believe, the necessary scientific knowledge for students of agriculture, (such as you mention,) "who have been well educated at our high schools, academies or colleges, and have also been trained practically in the business of farming." It provides:—

1st. Practical instruction in the modes of experimental investigation. This is, I know, an unrecognized department, but it is perhaps the better suited name to the course of instruction of our chemical department. It qualifies the student for the most direct methods of solving the practical problems which are constantly arising in practical agriculture. It includes the analysis of soils, the manufacture and testing of manures, the philosophy of improved methods of culture, of rotation of crops, of dairy production, of preserving fruits, meats, &c. It applies more or less directly to the whole subject of mechanical expedients.

2d. Practical instruction in surveying, mensuration and drawing.

3d. And by lectures—in botany, geology, zoology, comparative anatomy and natural philosophy.

Some of them,—indeed all of them, if desired,—might be pursued practically, and with the use of apparatus and specimens.

This course contemplates a period of study of from one year to two and a half years, according to the qualification of the pupil at the outset. He appears an hour each day at the blackboard, where he shares the drill of a class, and where he acquires a facility of illustration, command of language, an address and thorough consciousness of real knowledge, which are of more value, in many cases, as you know, than almost any amount of simple acquisition. He also attends on an average about one lecture a day throughout the year. During the remaining time he is occupied with experimental work in the laboratory or field.

The great difficulty with students of agriculture, who might care to come to the Scientific School, is the expense of living in Cambridge. If some farmer at a distance of three or four miles from college, where rents for rooms are low, would open a boarding house for students of agriculture in the Scientific School, where the care of a kitchen garden and some stock might be intrusted to them, and where a farmer's plain table might be spread at the price at which laborers would be received, we might hope that our facilities would be taken advantage of on a larger scale. As it is, but few, comparatively, among our students, come to qualify themselves for farming.

I am, very truly yours,

E. N. Horsford.

Hon. Geo. S. Boutwell.

I should, however, consider the arrangements proposed as temporary, and finally to be abandoned or made permanent, as experience should dictate.

It may be said, I think, without disparagement to the many distinguished and disinterested men who have labored for the advancement of agriculture, that the operations of the government and of the state and county societies have no plan or system by which as a whole they are guided. The county societies have been and are the chief means of influence and progress; but they have no power which can be systematically applied; their movements are variable, and their annual exhibitions do not always indicate the condition of agriculture in the districts represented. They have become, to a certain extent, localized in the vicinity of the towns where the fairs are held; and yet they do not possess the vigor which institutions positively local would enjoy.

The town clubs hold annual fairs; and these fairs should be made tributary, in their products and in the interest they excite, to the county fairs. Let the town fairs be held as early in the season as practicable, and then let each town send to the county fairs its first class premium articles as the contributions of the local society as well as of the individual producers. Thus a healthful and generous rivalry would be stirred up between the towns of a county as well as among the citizens of each town; and a county exhibition, upon the plan suggested, would represent at one view the general condition of agriculture in the vicinity. No one can pretend that this is accomplished by the present arrangements. Moreover the county society, in its management and in its annual exhibitions, would possess an importance which it had not before enjoyed. As each town would be represented by the products of the dairy, the herd and the field, so it would be represented by its men; and the annual fair of the county would be a truthful and complete exposition of its industrial standing and power.

Out of a system thus broad, popular and strong, an agricultural college will certainly spring, if such an institution shall be needed. But is it likely that in a country where the land is divided and the number of farmers is great, the majority will ever be educated in colleges and upon strictly scientific principles? I am ready to answer, that such an expectation seems to me a mere delusion. The great body of young farmers must be educated by the example and practices of their elders, by their own efforts at individual and mutual improvement, and by the influence of agricultural journals, books, lecturers, and the example of thoroughly educated men. And as thoroughly educated men, lecturers, journals and books of a proper character cannot be furnished without the aid of scientific schools and thorough culture, the farmers, as a body, are interested in the establishment of all institutions of learning that promise to advance any number of men, however small, in the mysteries of the profession; but when we design a system of education for a class, common wisdom requires us to contemplate its influence upon each individual. The influence of a single college in any

State, or in each State of this Union, would be exceedingly limited; but local societies and travelling lecturers could make an appreciable impression in a year upon the agricultural population of any State, and in New England the interest in the subject is such that there is no difficulty in founding town clubs, and making them at once the agents of the government and the schools for the people.

In the plan indicated, I have throughout assumed the disposition of the farmers to educate themselves. This assumption implies a certain degree of education already attained; for a consciousness of the necessity of education is only developed by culture, learning and reflection. Such being the admitted fact, it remains that the farmers themselves ought at once to institute such means of self-improvement as are at their command. They are, in nearly every State of this Union, a majority of the voters and the controlling force of society and the government; but I do not from these facts infer the propriety of a reliance on their part upon the powers which they may thus direct. However wisely said, when first said, it is not wise to "look to the government for too much;" and there can be no reasonable doubt of the ability of the farmers to institute and perfect such measures of self-education as are at present needed. But the spirit in which they enter upon this work must be broad, comprehensive, catholic. They will find something, I hope, of example, something of motive, something of power, in their experience as friends and supporters of our system of common school education; and something of all these, I trust, in the facts that this system is kept in motion by the self-imposed taxation of the whole people; that all individuals and classes of men, forgetting their differences of opinion in politics and religion, rally to its support as being in itself a safe basis on which may be built whatever structures men of wisdom and virtue and piety may desire to erect, whether they labor first and chiefly for the world that is, or for that which is to come.

FORETHOUGHT IN FARMING.

From an Address before the Nantucket Agricultural Society, Oct. 14, 1857.

BY A. B. WHIPPLE.

The first phase we present is that of *anticipation*. In this term, anticipation, is included forethought, prudence, or in plainer Yankee, calculation and planning. Perhaps prospection will be the better word, since this includes the idea of looking forward to make provision for future events. To illustrate this foreshadowing thought, let me direct your attention to a man, about to purchase a farm in some western forest. He goes and looks at the land, examines the soil, notices the way the land slopes, selects some spot where he may build—thinking forward all the while how he will build his house facing in this direction, what a splendid view will be his when the forests are cleared away, when yonder lowland will be the green carpeted meadow—when yonder invisible, because wood-hid, stream shall become a visible line of silver light, meandering through the vale, when yonder hill-side, adorned with the cottage houses of kind neighbors, shall gladden the eyes of his family and friends, as from his own home they look across the garden and the grain field, and the meadow and the river, and up the hill-side, to those terraced gardens, commanding those happy rural homes.

All this the eye of taste sees prospectively, and then comes the work which shall render this anticipated home a beautiful reality. You know Campbell somewhere says:—

> " 'Tis the sunset of life gives me mystical lore,
> And coming events cast their shadows before;"

but it seems to me that the *sunrise* of life would be a far better term for the young, who are looking forward in advance of the sunshine, into those dark forests of the future yet to be shone into.

And this prospective power throws the sunshine in advance of the sun, and enables us to see the beautiful in advance of others. He who climbs the lofty mountain peak, may see the sun, while the vale below is in darkness; and let him who thus sees the sun hold up a mirror, and he may by reflection throw down the sunshine upon some chosen spot, while all around is yet in darkness. Such is the power of anticipation.

To no class of men does nature and nature's God more thoroughly teach prospective lessons than to the tillers of the soil. God himself, earth's first and greatest farmer, has left the strongest proofs of agricultural skill in this department of antecedent provision of prospection. And what He has done on the grandest scale, man must in proportion do, to be successful.

Let us look, then, for a moment at the manner in which God prepared his garden, the earth, for the reception of the fruits and flowers which have since flourished in it, even making these count towards man's creation and subsequent growth. We to-day are the fruits of great culture, reaching back and back by a chain of events, to earth's earliest infancy. A few links in that chain we must notice. The creation of our rock-ribbed earth, the transmutation of those rocks into soil, the fertilization of that soil, the elaborate adaptation to man, and the continual expansion of his faculties.

Of the creation I need not say much, since geologists have often told you its history. They have told you of the granite foundation, but pulverized granite is not a soil. From whence, then, did vegetation spring? From the water and the air. This vegetation fed the fishes; both increased in quantity and number, grew and died for countless ages; their remains, mingled with decomposed rocks, gradually settled down and became laminated beds of rock; these rocks are our slate beds, and the slate is found, by analysis, to be crowded with vegetables in type like the kelp along our shores. Here, then, imbedded in the rock and kept for ages, is a fertilizing agent, and *now*, wherever slate rock abounds, is found a good grain growing soil. After this, we have another paleozoic or early animal age, and this in its turn deposited some twenty thousand feet of the crowded remains of fishes, mollusca, seaweeds and limestone, formed from shells and corals. All this formed a vast amount of compost which, when it had emerged from the waters, became the garden of a vegetation, so rank and abundant as to deserve more than a passing notice.

With a tropic sun to urge the growth, a gigantic race of vegetation overspread the land. Could the flag and ferns of our day speak out, I think they would say of their ancestors, as we see it elsewhere stated, there were giants in those days. Think of ferns sixty or seventy feet high, and ten or twelve feet in diameter, compared with ours of one-eighth or one-half of an inch! But all these gigantic ferns did not blossom and waste their fragrance on a desert air. There were no eyes to appreciate their beauty, even if it had been in proportion to their size. This, however, was not the end of their creation. All these were to be stored away in the storehouse of the carboniferous age.

Here were piled up for future use, those exhaustless beds of coal, now necessary for our comfort, and of incalculable value, as serving to enlarge the field of power and of knowledge. This was the great vegetable age. No birds nestled amid its stalwart branches. No herds fed on its luxuriant foliage.

This age seemed to have used up the then available remains of the paleozoic ages, and animal remains were again needed to prepare a richer compost for the race of men yet to be. Soon with a new creation, there came fearlessly creeping from the swarming waters, gigantic reptiles, as voracious as gigantic, basking in the warm sunshine, when satiated with what their craving appetites demanded. We must look on these huge saurians as so many laboratories into which were being transmuted for future use the elements of fertility.

These cold-blooded amphibions did their work, and were laid away in a tomb of rock, till after ages should disinter and decompose them, and spread them far and wide over the land. These are found in the rocks that form our mountains and our hills, and every rain that pours upon them is decomposing, and every freshet is spreading them in rich alluvia over our meadows. These old ichthyosaurians, as they crawl disintegrated from their graves, and settle down on our own wheat or cornfields, drive into being and into market more weight of grain than all the gold which dusts the valley of the Sacramento could purchase. But their age passed away, and then followed the age of warm-blooded animals, through whose agency were amalgamated and stored away all the organic elements suited to our agricultural propensity; and finally, the decomposed materials of amphibious races and sea birds has been for ages accumulating on the solitary islands of the Pacific and Indian Oceans, now forming those vast storehouses of guano, which whole navies of vessels are transporting wherever exhausted soils require fresh fertility. Such has been the forethought, the provision made for God's great garden, the World.

Throughout these several ages do we see this plan of saving for future use every thing that would fertilize, practically carried out. The fragments were gathered up, so that nothing was lost.

This must be one rule in a provident farmer's pursuits. Not merely a few days' forethought, when the warm spring days begin to call out the spring work, but throughout the year and during life.

And yet provident forethought, without corresponding action or labor, will never make the productive farm or the blushing garden. The hands that do work may belong to the head that plans every movement, or they may belong to other bodies and forces, such as horses, cattle, or wind, water, steam, and the like natural elements. These latter will do man's work, if he will only think and plan for them. And using them, one man will be a host. And what has not the continued work of man accomplished? We have already contemplated the works of Him who made the world, and fitted it for our labor, and you all know how vast the plan He formed.

Now let us for a few moments look at the works of man, and thence draw our inferences as to his power; and in so doing, we will direct our attention more especially to vegetable products. What we are to eat and what we are to wear, are and always must be, the staple products of the world, and whoever will discover any new materials for wearing, eating, warming and lighting, as cheap, or cheaper than what we now have, will prove a blessing to his race, and make a fortune for himself.

With the exception of furnishing light, the privilege of supplying these wants is given by necessity to the farmers. But, in speaking of action, all the action needed to accomplish any thing would become insufferably tedious. For example: a precise old gentleman says to his servant,—"Here, John, lift up the flap of the saddle that is on the gray horse, unbuckle the girth, then let down the flap, take off the saddle and place it on the ground. Then lift up the flap of the saddle that is on the bay horse, unbuckle the girth, take off the saddle and place it on the back of the gray horse, and untie the ends of the girth and make them fast with the buckle; then take the saddle from the ground, and place it upon the back of the bay horse, and see that it is properly fastened by means of the buckle you will find under the flap of the saddle on the right side of the bay horse." John listens to all this preachment with eyes and mouth growing more and more distended, and at its conclusion, exclaims: "Could yer honor not have said at once—'Change the saddles, sir?'"

Now, with all this minutiæ, he failed to mention a fourth part of the motions necessary to change the saddles.

So when I come before you to speak of the farmer's actions, I find that I can only say, change the saddles. For to particularize, would be to make a volume, in speaking of the different motions or actions connected with the raising of one hill of potatoes. While, then, I give the conclusion of the matter, let your imagination supply the primary and intermediate steps. For convenience, we will class all produce as follows: products of the sea, products of the forest, products of manufactures, and products of agriculture. Limiting our remarks merely to the exports of the United States, let us see their relative importance. All the products of the sea,—oil, bone, and fish,—amounted, in 1853, to a little more than $8,000,000. All the products of the forest, including lumber, bark, tar, pitch, turpentine, potash, pearlash, skins and furs, amounted to about $8,000,000. The manufactures amounted to nearly $47,000,000. The products of agriculture, to more than $154,000,000. Here, then, we see that nearly two-thirds of all our exports are the direct result of agriculture; while of the manufactured articles, leaving out gold and silver coins, nine-tenths are derived from the farms, and dependent on agriculture for their existence and supply. This business of farming, then, performs no small part in laying the foundation of all commercial as well as national prosperity. The cotton crop, as the result of soil-tilling, will, no doubt, furnish some items of interest. Let us for a moment spin a story.

All the farms in the world raise about 1,500,000,000 pounds of cotton. From the reports of the London Exhibition, we learn that one man had on exhibition 2,400 hanks of cotton, each containing 840 yards of thread, and yet the whole weighing only one pound. This one pound of thread will be in length about 2,000 miles, and the 1,500,000,000 pounds would thus make 3,000,000,000,000 miles. With the yarn already spun, let us weave a web of interest. Putting in our loom of fancy 100 threads to the inch, using one-half for the warp, and the rest for the woof, let us see how long a piece of cloth we can make, one yard in width; by mathematical rules,—we calculate 420,000,000 yards,—more than four times enough to reach to the sun—more than enough to wind around the earth 16,000 times—or about enough to make a sheet ten miles wide, and long enough to reach once around the world. If, in the form of thread, it could be used as a telegraphic line, and all the planets were in a row, there could be a station in the Sun, Mercury, Venus and Earth, and Mars, Jupiter, Saturn, Uranus, Neptune, and the forty-four other asteroids. Talk about inconceivable distances! Why, the thread that might be made from cotton vegetation alone would far more than reach the farthest planet in space. And were all this to grow in one stalk, no larger than the thread, it would shoot upward faster than flies the ball belched from the flaming mouth of the cannon. Add to this the linen, tow, and hemp of various kinds, raised in the world, and we have annually enough to make ample sacks for the asteroids.

During the present year there have been raised in the United States, to say nothing of other countries—

600,000,000	bushels of	corn,
200,000,000	"	wheat,
150,000,000	"	rye,
100,000,000	"	buckwheat,
50,000,000	"	barley,
500,000,000	"	potatoes,

100,000,000	bushels of	pease and beans,
40,000,000	“	rice,
100,000,000	“	apples, peaches, pears, plums and cherries.

These would require a bin twenty feet wide, ten feet deep, and 2,400 miles long to contain them. And yet what the United States raises is not more than one-tenth part of what the world produces; so all together would require a bin of the above depth and width, and long enough to encircle the earth, and right alongside would be required a tank, of the same or much larger dimensions, to hold all the molasses, wines, liquors, ale, cider, and other drinks, including smaller and lager beer. Why, of sugar alone, there were made last year, 2,000,000,000 pounds, which could scarcely be contained in a box ten feet deep, twenty feet wide, forty miles long; while all of the gold in the world would easily find a resting place in one of the same width and depth, and less than forty feet long.

Were I not fearful of wearying your patience, I should like to make some calculations as to the world's meat market and the world's groceries, and thus make out the bill of fare which is annually placed before the hungry denizens of the earth. But I dare not run the risk. I might perhaps of *this* audience hold the attention a little longer, if I should address the ladies upon the subject of dry goods, instead of groceries; if I should speak of costly silks,—the shroud of a dying caterpillar, which the farmer fed till it died,—of cotton, muslin, linen, cambrics which the poor slave or rustic farmer must plant and gather annually; of woollens, worsteds and delaines, sheared or pulled from the back of the silly sheep, which the farmer must rear and care for; or of shawls, the hair of goats and hump-backed camels, which the farmer must watch and attend to. But ladies, there are some things which the farmer does not, purposely, at least, raise, such as *cats*, of which to make *kid* gloves —wild animals, for furs. This, however, would also be subject to your examination if there was to be a great party this fall, to which all the world were invited, and where the bill of fare above alluded to, would be finally served to all. Some of you, perhaps, have already, like true housekeepers, commenced considering how all the amount of eatable matter is to be cooked in a sufficient variety of ways to please and satisfy all the invited guests; a thought which truly suggests the close connection existing between good cooking and good farming. Truly, there is a world of thought clustering around this agricultural department, spreading, as it does, its supporting branches through almost, yea, every department of manufacturing. Then there is our Yankee peculiarity of getting all we can, and keeping all we get, together with that of asking questions, especially that most oft repeated question, Why? The farmer gets and his wife should help keep. He fills the dairy-house, cellar and barn, and expects her to look well to the things with which she has to do. Her part is to save, not meanly, but from absolute loss, that all that is in the house, may be of benefit to those within and around it. This she can best do whenever nature's suggestive Why, can be correctly answered.

Allow me then, ladies, to make a visit with you in your cellars and cellar-kitchens, instead of the upper room or even the parlor. As we look around, let me ask questions, and you answer them. Your husband has provided for you some fine potatoes—a couple of boxes, you say, just alike. But why are the potatoes in the tighter box so much more free from decay than the others? I see you have some apples, also. But why do they keep well, when the potatoes do not? Ah, here is the milk-room, a little too cool. Can you tell me why the temperature should be between 50° and 60° Fahrenheit to produce the most cream?

You have your cook books filled with rules, but unless you can give some reason for those rules, you will sometimes fail. I have somewhere read or heard of a certain book captain, who in all things respecting navigation, followed the teachings of his book. One day in mid Atlantic, he was giving orders from his book when, while looking aloft, the wind turned over the leaf. Presently he looked on what he supposed was the next order to the one last given, read and gave out, "Let go the anchor." And the anchor was dropped. Now had the man thought of the wherefore, he would not have done so foolish a thing. But, ladies, I will not take too close an inspection of the part you have to act in preserving the products of the soil. I will not wait for an answer to the questions proposed. If at some future day I should happen in, and you feel disposed to give me an introduction as to the best way of making much of a meal out of small means, and the reason therefor, I will be an attentive listener to those instructions. This will be the head-work. The kneading of dough may be the hand-work, as much of all agricultural labor is and must be hand-work, but head-work is chief; thought and drudgery, contrivance and execution, mind and body, these must go together to make a good farmer. This thought I will not press, but will proceed to notice the retrospective view of an agricultural life. Being now, as it always has been, the very ground-work of national prosperity, and the cultivators of multiplied means of happiness, as well as the constant reproducer of life's necessities, we shall surely find some pleasure in looking back on its progressive history. We all know how pleasant it is to tell over and over again, our deeds of former days. To no person can this be more pleasant, than to the farmer.

Sitting in his beautiful home, surrounded by all that is improved and elegant, the work of his own hands, memory carries him back to the forest which covered the land when he first on foot, and axe in hand, entered the deep, dark woods. He points to the spot, where yielding to his sturdy blows, the first giant of the forest fell with a crash which was pleasant music to his ears; telling him as it did, that an opening had been made, that the first sunshine had been let in, that the first blue sky had been made visible. He will relate, step by step, the building of the first log-house, speak with enthusiasm of the first fenced field, the first planting season, the first framed barn, the first crop, the first sale of produce, the first neighbor, the first saw mill, the first grist mill, the first school-house, the first church, and so on, noting all the successive improvements in his farm—farming, garden and flower culture, houses and out-houses —till he closes his oft told tale by asking you to walk about the premises and see for yourself. You do this, and the result is, you come to the same conclusion that we have; that the cultivation of the soil tends to the cultivation of the taste, of the social relations, of the arts; in short, of all those improvements every where being made, to which the word culture is applied. Indeed, this very word "culture" or cultivation, however generally used now, is the sole, original property of the farmer, and has been lent by him to all other trades and callings. You will allow me to expand this thought a little in this place, an island peculiar in its position as respects farming, and an audience, a large part of which are not directly interested in agriculture, and therefore easily impatient of an agricultural address.

Had I time I could show the connection between tilling the soil, and the flowers, buds, leaves and grasses which now adorn your bonnets, yea, more even—the material of which they are made. So also the dresses which you wear and the houses you live in, with their architectural beauty, all have their fitness and appropriateness accredited to soil tilling, as the primal starting point. The fluted columns which support and ornament some of your dwellings are but amplified imitations of the rushes we see growing. The symmetry and gracefulness of the carved vine, which with its spiral leaves and rich clusters adorns these fluted columns, are but transcripts of nature. The patterns of your carpets, of the wall papers, of your skilfully wrought centre pieces, the beautiful paintings of landscape scenery which adorn your homes, all, all are gifts of nature through him who has studied her works. But this is not all. Engrafted on this very agricultural system which today we would encourage, we find many choice fruits of literature ; fruits whose beauty and sweetness would never suggest their origin did not occasions like this call for a glance at their origin and results.

When then did such gatherings commence, and what have they been doing for the world ? We mark them first among those old Greeks, whose harmonious language is the pride of the learned, and whose very harmony would have died, and all their beautiful mythology, from which our poets glean their brightest thoughts, had they not established their olympic fairs nearly three thousand years ago. And what was done at these fairs ? First, they were merely trials of physical skill, where women were not allowed to be present. At length an exception was made to this law of exclusion, in favor of the priestess of Ceres, the goddess of fruits and harvests, and certain other virgins. Soon we find that the attendants of Ceres had effected a great improvement in the style of the entertainments. Contests in poetry and music were introduced, and women became successful competitors for prizes. We learn, too, that they were considered of so much importance that at their commencement a sacred truce was proclaimed, and any armed invasion during their continuance was considered an act of sacrilege; and finally, the territory where they were held, was claimed as sacred from war. Men of skill and men of wealth contended for prizes, which at first were magnificent and valuable, serving to call forth and cultivate the artistic skill of the nation. Statuary also was greatly encouraged, as the statues of the victors were erected at their own expense, or that of their fellow citizens, in the sacred grove of Olympia. Crowds flocked together to witness the contests and admire the works of art, and praise in words as well as gifts, was bestowed on the victor. Orators and poets were thus called in requisition, and literary productions became works of finished taste. Men began to work for fame, or rather compose and rehearse for fame. Speaking, or declamations came to be practiced, and thus Homer's poems were saved to the world. Here Herodotus, that famous old father of history, first recited his great work, and from Greece sprang Thucydides, to whom we are indebted for much of our knowledge of the ancient world.

But we find that the records of heroic deeds, kept only in memory, met with gradual changes, till at length the heroes were accounted as gods, thus forming that wonderful mythology which, when closely studied, shows how the works of man and the works of nature, or the genius of nature, stood out boldest in their thoughts. Had I time, I should like to show how the early husbandmen were obliged to watch the seasons, the sunshine and the storm; to show how the active mind of the poetic Greek personified the soil, sunshine and the atmosphere; thus adding to those myths of the olden time. Great Jupiter, father of the gods, is but the power of the sun personified, and Juno, his goddess wife, the personified influence of the air, and the famous quarrels of these, the personified struggles of the elements. From these contentions the early agriculturists suffered, and to guard against them were ever watchful. This constant watchfulness is typified by the 'four-eyed (sometimes hundred eyed) Argus, representing the four seasons, who was slain by Mercury, the inventor of letters. Early agriculture is typified by Io, and the legend runs, when Mercury slew Argus, Io was left free to wander over the whole earth. Now to say that Mercury killed Argus, and liberated Io, is to say that when rules and precepts of agriculture were introduced, mankind were released from that ever watching care which early husbandry had required from them, and agriculture, now reduced to a regular system, went forth in freedom and spread itself among the nations. This verson of the old myths finds confirmation in the fact that Io finally found a resting place in Egypt, on the banks of the Nile, where the earth brought forth the richest abundance. And again we are told, that the eyes of Argus were transferred by Juno to the plumage of her favorite bird, the peacock. And the peacock, our farmers know, gives some indication of a change in the weather by its peculiar cry; and it is therefore in this respect intimately connected with the operations of husbandry. So too, I might call your attention to the twelve labors of Hercules, showing their relation to the twelve signs of the zodiac, and of course, to the twelve months of the year, and the appropriate labor for each,* and also to the death of this hero, who finished only to commence his life anew in the heavens, as do the seasons, the emblems to the year of immortality. But of all this, I spoke somewhat more at large a year ago, and may not now repeat. And what was true in the early ages, of such gatherings, is true to-day in our midst. The hymn, the song, the speech, form now, as well as then, a part of the day's duties. The sight which has gladdened your eyes to-day, has had some influence on your taste for the beautiful in nature and in art; and though you may not possess all that you have seen, yet you have learned to enjoy with a keener relish whatever is beautiful. Who then shall say that that labor is lost, which adds to our enjoyment, though it adds not to our food or clothing?

Now what is the retrospective view of this society, looking back over the surface of a single year. Has a flower budded and blossomed where last year bloomed a thistle? Has a shade tree struck its roots into soil last year unoccupied? Have any fruit trees been invited to make this island their home? Have any busy fingers worked in worsted or silk, specimens of beauty which they would not, had no coming fair held out its inducements? Has no farm had more careful working, no garden more thorough attention, no cattle better care, no horses a better training, no vines a better pruning? In short, no mind a better cultivation for the fair which to-day pleases us?

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* The fact that his last labor was to gather golden fruit.

Go into yonder hall, and amid its exhilarating beauties, feel an answer vibrating along every nerve of your emotional nature. Read athwart the western wall, these encouraging words, made doubly encouraging by abundant fruits in trying times: "The earth shall make its dividends, though every other depository fail." Then let your eye like a pendulum swing across and read from the opposite wall, "He that tilleth his lands shall have plenty of bread." Linger for a little while in that little grove of flowers and catch their inspiration as well as their fragrance, and then look up and feel the depth of that simple wish, "Bring flowers." Oh, where are flowers inappropriate?

Bring flowers to crown the cup and lute,
  Bring flowers, the bride is near;
Bring flowers to soothe the captive's cell,
  Bring flowers to strew the bier.

Look once more in that other corner, and lay to heart the wisdom of that other motto, "I die if neglected." How many a flower, how much fruit, how many a budding mind, how many a blossoming joy has died through neglect. As you ponder these lessons, can you fail to see that those whose hands have been busy in arranging as well as cultivating all that is beautiful, have had their minds alive and active with thought. As you see original methods of arranging fruits and flowers, and notice how much arrangements add to native beauty, and mark also, how much superior is this year's display to its predecessor, can you fail to see mental culture exhibited in greatly improved taste. The retrospective glance, revealing merely the products of skill and industry, is not enough.

Imagine how much has been done that can never be seen. See in how many departments of human industry the desire to do something has been awakened or created, by the stimulus of approbation evoked by the society. From the cottage and the palace, from the workshop and the farm, from the merchant and the sailor, from the white and from the black, have specimens of skill come to adorn the hall and please its visitors. Indeed, the Nantucket Agricultural Society seems to have acted like a great magnet. You know when we hold a magnet over a handful of sand, in which are particles of iron and steel, these leap up and cling to the magnet, and thus show themselves. Thus it is that the genius of labor has arisen in our midst, and stretching out his magnetic hands over the sandy island, the true iron and steel have sprung up to his embrace. Iron and steel, the plough and the compass, labor and thought.

FARMS.

ESSEX.

Report of the Committee.

> I know that truth lies in facts, and not in my mind which judges of them; and that the less of myself I put in the opinions I form, the surer I am to approach the truth.—M. EMILE.

The committee appointed by the Trustees of the Essex Agricultural Society, have availed themselves of every opportunity afforded them for the discharge of their duties, and regret that their observations have not been more extensive, and that no farms have been entered for premium. The task assigned them is one of the most agreeable, and may be made one of the most useful of all duties imposed upon members of the society. Without in any way appearing before the agricultural community as a commission of investigation, they have endeavored to obtain such information of a practical character as may be of service to those who would learn from experience; and they feel that no occupation presents so many objects of deep and abiding interest as that which connects man intimately with nature, and establishes his dependence upon her variety and her mysteries. The success of the farmer, who, with unwearied diligence and instinctive sagacity, appeals to the uncertain soil and the changing seasons for his reward, is something more than a mere question of ordinary business, for it brings before the mind all those associations and those strong bonds which bind men to the earth as a great parent, and it arouses within us those sentiments which have filled the breasts of all who have sought relief from the perplexing cares of life, in the simple, healthful and refreshing pursuits of agriculture; a relief perhaps deemed visionary by him whose daily toil has become a burden, but most truly sweet to him who exchanges but for an hour the fever of the counting-room, or the bar, or the forum, for the even pulse which marks the equanimity and strength caught from the broad earth and the overarching sky; a relief, too, which the practical farmer would appreciate if he would desert his acres for a season, and take his stand in the narrow and crowded and hurried spheres of more restless life. The man who is called upon to witness the agricultural operations of a community, has, therefore a higher satisfaction than any mere survey of business can give; he lays up a store of pleasant associations, and cultivates tastes which may perhaps give him hours of pleasure, as they have many a man before him.

We cannot doubt that these feelings filled the mind of that enlightened farmer, true patriot and distinguished statesman, who, amid the cares of life, found repose on his farm in Essex county, and who, as the first president of our society, introduced the plan of duties which have this year devolved upon us. For a long time, now more than thirty years, the discharge of the work connected with the viewing of farms, has been among the most agreeable incidents of the society; and the statements of our farmers, and the reports upon their farms, are among the most valuable of our papers. We remember with pleasure the accounts given of farms in Andover, West Newbury, Newbury, Danvers, Hamilton, Ipswich, Salem, and many other towns; and we remember, too, with great satisfaction the lessons derived from these records of experience. And we regret that of late years, the statements presented have been so meagre, and the number of applicants for premiums so small, that a change of plan has been suggested, by which some specific object, and not an entire farm with all its various operations, should be brought before the committee. We would most earnestly urge upon our farmers a return to the interest felt in this matter formerly, with the assurance that no question in agriculture is more important than that which involves the general management of the farm, and throws light upon any system which can be applied to this great branch of business. For although the mode of reclaiming a swamp may be the same throughout New England, although drainage may be adopted in one state, county or town, as well as in another, although the application of manures to different soils may admit of some universal rule, still there are no two farms whose capacities and resources are precisely alike, and to which one system of management can be applied. Size, soil, condition, location, all combine to prevent this; and one of the most important and fundamental principles of farming is that which teaches us how to avail ourselves of those resources which are contained, in every variety of combination, in the thirty-five thousand farms into which our Commonwealth is divided. The true value of this will be fully understood, when we remember that one farmer fails because he never ascertains the true intention of his farm, never learns how to make the most of it as a whole, and another succeeds on the same tract of land, because he comprehends how it can best be managed in all its parts so as to make a symmetrical and profitable system.

We have been invited during the last year to visit three farms in the county, not for the purpose of awarding a premium, but for the sake of instruction and gratification. Each farm is truly remarkable in its way, and we consider it quite a misfortune that circumstances well understood by every property holder in this country, have prevented our obtaining an accurate and systematic account of the receipts and expenditures, the profit and loss, the cost of this crop and that, in a word, the true economy of each. The merchant can tell you the earnings of his ship, the manufacturer may proclaim with impunity the profits of his mill, but the farmer, upon whose property the eye of the whole community is fixed, is tormented by a system of espionage which makes him the prey of assessors, and throws the great burden of taxation on his shoulders, because his estate is real, and because he is less likely than almost any other member of society to be compelled to avail himself of those institutions which have received the peculiar prefix of civil. But to our farms.

The first farm to which the committee were invited, was the estate of William Sutton, of South Danvers. It contains about four hundred acres, extending nearly one mile from his residence towards Lynn, and has mostly been reclaimed from a rough pasture condition within the last twenty-five years. The cultivated land lies in the level intervals and upon the hill-sides between rough ledges of rocks, and has been judiciously cleared chiefly for the purposes of hay and root crops, the former of which is usually very abundant. The orchards are in a neat and thrifty condition, and contain the choicest apple and pear trees. The products of the last season are one hundred and fifty tons of hay, three thousand bushels of roots,—carrots, turnips, beets, &c.,—forty barrels of apples, forty bushels of pears, and two hundred and fifty bushels of corn. The amount of land under immediate cultivation, is fourteen acres, and the amount devoted to grass is eighty-five acres. The remainder is still used for pasturage, and serves to keep about twenty-five head of cattle. The farm is fenced mostly with stone fences, which are carefully kept in good order. The farm buildings and the supply of farming implements, are well worth the examination of every farmer in the county. The barns, stables, yards, cellars, sheds, shops and tool and storehouses are all models in their way. A complete outfit of tools is neatly arranged in its appropriate place, and near by is a well-ordered workshop in which necessary repairs can be made. Every thing is kept in its place. In the cellars and yards every spot is appropriated to some useful purpose, and the most convenient arrangements are made for cattle and poultry as well as for the collection of manure—that most important branch of all good farming. We consider the construction of Gen. Sutton's barn so good, that we would recommend it to every farmer who would make the most of the natural advantages his farm affords for the location of his buildings. And we would also commend the system, order and neatness of all his farming apparatus, as indispensable to really economical and profitable husbandry.

The next farm visited by us was the Danvers Town Farm, situated in a very unpropitious region near Lynnfield, and carried on by one of the most intelligent, capable and industrious farmers in our county. He has furnished us with his own statement, which we consider a valuable contribution to our report. He says:—

"In the programme of premiums offered the present year, I notice it is said: 'Any person desirous of having his farm inspected, may, on application to the secretary, have it visited and reported upon by the committee, without entering the same for premium.'

"It was with this view that I invited you to visit the Danvers Town Farm, which has been under my care as master of the almshouse, since 1850,—not that I think of placing the same in competition with many of the fine farms in the county, favored with natural advantages and superior means of culture,—but to show what can be done by persevering industry, on a soil most repulsive and forbidding in its aspects for purposes of farming. This farm, when purchased for the use of the town, contained about two hundred acres, and was considered valuable chiefly for the wood growing thereon. This, as I am informed, was about fifty years since. Sufficient wood and timber was, in the course of a few years, cut and sold to pay the original purchase. The buildings on the farm were old and inconvenient. The town poor, numbering about sixty, were transferred to the farm, and were employed as best they might be.

"Thus matters remained until 1844, when the town determined to remove the old buildings, and to erect new ones, better fitted for the purpose. The amount appropriated and applied to this object was twelve thousand dollars; and the town has since had the satisfaction of feeling that its poor are as well provided for as their condition will admit.

"Of the farm, about one hundred and forty acres still remain to wood, and there is now a growth upon it of from fifteen to twenty-five cords to the acre. There are from ten to twelve acres of meadow and swamp land, which are used to furnish materials for making manure, and coarse fodder for the stalls. Some of the lands have been reclaimed by drainage and top-dressing, so as to afford good crops of the best English hay. The remaining lands under cultivation, are hard, gravelly fields, kept in a productive condition by constant culture, and by a liberal application of manure, made upon the farm. In making the manure we have freely commanded the services of the hogs —from fifty to eighty of which have been constantly kept on the place, until their number was greatly diminished by the hog cholera, so prevalent in many parts of the country during the last season. In addition to the materials taken from the meadows, we collect charcoal dust, saw dust, and the offal from slaughter houses, all of which is thrown to the hogs. In this way we have made annually about two hundred cords of manure, well composted, and liberally applied to the land. We usually plough our land in the autumn, covering the manure deeply, and plough again in the spring, in order to mix and pulverize thoroughly the soil and the manure. We find under this treatment our crops range from fifty to eighty-five bushels of Indian corn to the acre—the crops this year averaging more than sixty bushels, though planted on very shallow, gravelly land. Our rye has yielded more than forty bushels to the acre, although the crop for the present year, on twelve acres, ranges from twelve to thirty bushels to the acre, owing to the bad weather at the time of harvesting. Taking the present year with the seven preceding, the average yield of rye is a fraction over thirty bushels to the acre. We have raised over two hundred bushels of potatoes to the acre. Thirty acres of grass land yield forty-five tons of English hay. And we raise vegetables enough to supply a family of sixty persons.

"Respectfully yours, &c., ADINO PAGE."

We would add to the statement of Mr. Page, that the farm under his care gave evidence of prudent and economical cultivation. His system of manufacturing manure is certainly most effectual in supplying compost heaps which any farmer might envy; and that he has applied them well is fully attested by the luxuriant fields which he has brought out of the swamps and gravelly plains which compose the farm. The expense of this we did not ascertain—but we can conceive that almost any outlay in this direction would be attended with an ultimate reward. We look upon the operations of Mr. Page, as a fine illustration of the application of good practical agriculture under great obstacles, and of the success which follows careful tillage.

We visited lastly the well known farm of Horace Ware, situated in Marblehead, containing about one hundred acres, and stretching from the road between Marblehead and Lynn to the seashore, a parallelogram about one hundred and sixty rods in depth. The location of the farm is very beautiful, commanding a fine view of the sea, and affording fields admirably adapted to cultivation. The farm buildings are judiciously located nearly in the middle of the estate, being easy of access from every quarter, and affording convenient accommodation for all that is needed in extensive operations. Short distances for the travel of laborers and for the transportation of manure, is evidently one of Mr. Ware's principles of farming. Luxuriant orchards surround the buildings, and give evidence of skilful management. The crop of apples even this season, unpropitious as it has been, was very fair.

The collection and use of manure is an important item in Mr. Ware's system of farming. His large and thrifty fields of onions, his crops of corn and rye and roots, his abundant yield of grass, all tell that he has discovered the secret of agriculture. His proximity to the sea enables him to obtain one of the best and most permanent fertilizers, but sea and land both are compassed to furnish him with the foundation of his business. The information he has afforded the committee on previous occasions, and which has been incorporated into the transactions of the society, is valuable as bearing upon this one point, the proper mode of fertilizing as understood by a successful practical farmer.

It is unnecessary to give a detailed statement of Mr. Ware's crops. Whatever they may have been in times past, they have enabled him to bring a difficult tract of land, acre by acre, into high cultivation, by means of good drainage and careful enriching. And if, as we have been told in another sphere in life,—"success is a duty,"—in agriculture it is also a recommendation which ought to give value to the opinions and operations of him who secures it.

We have endeavored to lay before the society, such facts and suggestions as we have obtained from the farms visited during the last season. We desired that they should be more explicit. The value of experience in agriculture, cannot be too highly estimated, even by those who look to science for a complete regeneration of the whole farming world. We have no disposition to undervalue the labors of those diligent chemists and geologists who have devoted their lives to examinations of soils and of those chemical affinities which may make the "desert blossom as the rose." We are perfectly willing to believe that a system of agriculture may be drawn from books, during the dull hours of a long sea-voyage, and applied to the hardest soil of England, as the author of "Talpa, or the Chronicles of a Clay Farm," professes to have done. We are willing to give all due credit to those who would tell us by theory what manures are adapted to one soil, and what to another; what to trees and what to potatoes. We have entire respect for the Liebigs, and Hitchcocks, and Jacksons, who are led through the subtlest channels of science to the investigation of the capacities and necessities of soils and crops. But we cannot forget the thousand valuable facts which can be obtained only from those who have hardened their hands in the practical pursuits of agriculture. The paleness of the laboratory may be very well in its place, but the flush of the field comes with its many claims for attention, comes as one with authority. There are many facts in scientific agriculture, interesting enough in themselves, but having little to do with the great work of agriculture as a branch of business. All the science in the world would not teach us that salt is a good manure for asparagus, and were it not for experience, perhaps empirical in itself, the gardener might wait forever without discovering the best mode of raising this valuable esculent. Physiology and anatomy are two highly interesting branches of medical science, but let me ask any one if a learned dissertation on the structure and functions of the liver, would be of any service to him were he shaking to pieces with an attack of fever and ague, which experience teaches him quinine alone will cure? And yet all the physiology and anatomy in the world, would never teach mankind that quinine is a specific in fever and ague—no more would all the chemical analyses that ever puzzled and mystified the most diligent student, teach us that salt is good for a bed of asparagus. Liebig might discourse from the winter to the summer solstice upon the relations between manures and soils; upon phosphates and super-phosphates; upon silex and ammonia and carbon, and the long list of salts, and we might all sit and listen while the spring months were flying away from us, but could he tell us whether to sow our carrots early or late; whether we should manure our potatoes in the hill or broadcast; whether barnyard manure or muscle beds will give us the best onions; whether we should plough our grass lands in the autumn or spring; where we should plant our squashes, and where our corn and our carrots; how to put in our seed so as to secure the most abundant harvest? We may listen day after day, to the botanical lore of the enthusiastic Gray, but while we listen, will not his *triticum repens*, better known among us farmers, as twitch grass, choke our fields, for all the knowledge he can give us with regard to its eradication? The learning of Agassiz may enable him to tell us the very year in the world's existence, when in the classes of animals, the genus *Bos* came in its natural order; but will he inform us how to tell a good cow from a bad one? We would not underrate science; neither would we overrate it. We are confident no farmer of Essex county will think lightly of intelligence and education when he remembers that Pickering and Colman belong to their number, and have left behind them their teachings and example. No farmer of Massachusetts will disparage the benefits of careful education to an agricultural community, when we have intrusted for years, the interests of this great branch of industry to the care of our Lowells, our Warrens, our Everetts, our Quincys, our Winthrops, names which have given a distinction to Massachusetts agriculture, compared with which the annual ploughing of Chinese emperors for thousands of centuries, even before the days of Moses, is a mere farce.

But there is an amount of practical knowledge based on the experience of hard working, successful, practical farmers, without which all the theory in the world is but a glittering show. An intelligent farmer walks through your field of onions, and he tells you how you can gather your crop, so that all the "bull necks" in the field may be made to swell out into fair and marketable proportions. Did he learn this from theory, or from his own sunburnt experience? You have a field which you wish to lay down to grass, and are in doubt whether to sow rye, barley or oats, or neither with your seed; it is your experienced neighbor whose land lies next to yours, and who is subjected to the same influences, who can give you the advice you need. A cunning gardener discovers that bone manure will bring his fruit trees into thrifty bearing, and science says it is all due to the phosphates. But who did the business, science or the gardener? It is the collection of facts, after all, which must to a great degree constitute the great bulk of useful agricultural literature. It is actual experience which is to tell us how we can reclaim the moss-grown pastures and drain the cold wet meadows of Essex county most economically and profitably. It is experience which teaches the best modes of applying manures, of feeding cattle, of carrying on the detail of the farm; and it is experience which we would obtain in our examination of the farms of this county. That which is learned from the soil has a practical application which gives it a substantial importance.

The knowledge imparted by a system of agricultural education, receives its highest value from that branch of the work which is based on actual labor. The merchant learns his business in the counting-room, the lawyer in his office, the physician in his practice, the farmer in his field; and while we welcome every ray of light which science throws upon our calling, we would most earnestly urge the practical agriculturist to preserve for the benefit of mankind, the observations which he naturally makes in his daily toil. We need an agricultural literature like this, not loosely prepared, but arranged with intelligence and care, and based upon a proper application of science to the business of life.

We would suggest to our farmers, that every opinion obstinately persisted in may not be valuable, and that an experiment may not be useful, even if months were employed in making it. No business requires so intimate an acquaintance with what is past, and so ready an acceptance of what is to come, as farming; for in none are there such opportunities for that progress, which, to be well made, must be based upon the failures and successes of those who have preceded us. Columbus undoubtedly caught the idea of a new hemisphere from the half-formed theories contained in musty ancestral manuscripts; and many a crude experiment, long since forgotten because never properly made, may suggest an opening to an entire new world of rich and valuable knowledge in agriculture. In the use of labor, in the management of the land, in the application of manures, therefore, and in all that goes to make up a sound agricultural education, knowledge is indeed power, and wealth also; and we mean by knowledge that kind of information which belongs especially to a good farmer. Farming is no hap-hazard occupation. There are indeed certain elements upon which it depends, which are beyond man's control, and which he can only watch and obey to the best of his ability. But while the seasons are uncertain, while the sun is capricious and the "wind bloweth where it listeth," the ingenuity of man is more especially called upon to give exactness and certainty to the whole business of agriculture. Burke says: "I have been a farmer for twenty-seven years, and it is a trade the most precarious in its advantages, the most liable to losses, and the least profitable of any that is carried on. It requires ten times more of labor, of vigilance, of attention, of skill, and let me add, of good fortune also, to carry on the business with success, than what belongs to any other trade." If this be so, how powerfully is the farmer appealed to, to bring an exact education to his work! How necessary it becomes that his labor should be something more than the mere application of brute force to subduing the soil! And when we remember that amidst all the fluctuations of trade, while the rich find their fortunes flying away from them, and the laborer is starving; while manufactures and commerce stand with folded arms, waiting to see what the great agricultural interests of our country are to do for their relief, the farmer has reason to congratulate himself that he belongs to a class whom panics seldom reach, and whose expansions and contractions are hardly perceptible—a class more sure of comfort and a rational subsistence than any other in the world. Such a calling as this deserves the most patient observation, the most careful experiments, the most accurate record, at the hands of all immediately engaged in it, and the most profound investigations which science can bestow upon it. For agriculture never faileth. Whether there be manufactures, they may cease; whether there be commerce, it may vanish away. But so long as man has a home and a country, he must recognize his dependence upon the soil, and he must feel that an occupation which lies at the foundation of society, and produces the yeomanry of every nation, is worthy of his highest powers both of mind and body.

The agricultural education, of which we speak as so important to the farmer and so indispensable in his preparation for his high calling, must begin early in life. The old adage that "the poet is born, not made," applies with equal force to the farmer. There is a love of country which must be inhaled with the breath of childhood. There is a familiarity with the commonest affairs of rural life, with the stones and the sods, with the grasses and fruits, with the habits of animals, and with what may be called the functions of agricultural existence, which no devotion to natural history, no analysis of soils and manures can ever give. Nature is very coy. She is not to be wooed and won at a distance. She asks for no blind admiration. But that acquaintance with her which will induce her to "yield up all her secret store," must begin when the powers are yet tender and willing to be moulded by her influences, and when the feelings are moved by her faintest touch. She requires a quick response. And that response she gets only from those who sit early at her feet, and learn her wisdom while yet young. It is astonishing how keen man's instincts become under her teachings. The birds of the air and the beasts of the field are not quicker to recognize her changes than is man, when he is devoted to her cause. We may be told that John hates the sunrise and the sweet morning air of summer, because they but open to him another day of toil. But take John into the noonday labors of a crowded city, and see how heart-sick he will become for the habits and the whole aspect of his ancestral acres. He has genuine love for the country, in all its very slightest movements. So, too, of his observance of natural phenomena. All the meteorological tables and theories of storms in the world are not so serviceable as his knowledge of the "face of the sky," got by gazing there. It is with the very dawn of our existence that those powers begin to be cultivated, which lie at the foundation of success in agriculture. And if we will but look beneath the hard exterior which is too often perhaps acquired by constant toil, we shall find those faculties and sensibilities to which we have referred, as belonging peculiarly to the farmer, and which are the rudiments of a good agricultural education.

If our farmers would bear this in mind, if they would really recognize how much more substantial are the simple tastes which they acquire than the nervous pleasures of more active life; if they would remember how much more certain are their moderate gains than the inflated promises of more hazardous business, they would dedicate their sons with peculiar care to the soil. Education, which is now considered a means of elevation above rural callings, would be considered merely as a part of the preparation for a proper discharge of those callings. Those glittering temptations which turn men from steady, hard, and honest industry into what are deemed easier paths of wealth and honors, would all be powerless. We should seldom witness that dismal picture, now too often seen, of a young man toiling wearily and heavily in the pulpit or the school-room, in the counting-house or at the bar, while his father's corn fields are suffering for the want of his sturdy arm, and the world has lost a good farmer and gained nothing. But upon the second nature which the boy has acquired by his early associations, a system of judicious education would ingraft the principles of the best modes of successful practical agriculture. It is for such as he that colleges of agriculture may with propriety be endowed. It is to this class that the special training of farm schools belongs, just as the clergyman, the lawyer, the physician, each finds his proper place of culture. And it is by filling agricultural schools and colleges from this class, that their true advantages can be ascertained.

Take such a person as we have described, one who has been filled with the spirit of agriculture, and has been taught to believe that his occupation is as honorable and as safe as any on earth, one who feels that "more of labor, of vigilance, of attention, of skill," and let us add, more of the virtues of prudence, patience and fidelity are required to secure success in his business than in almost any other on earth, and give him the benefit of all that science and experience have done for him. Let him learn the nature of fertilizers and their appropriate application to soils. Let him know that he is in danger of wasting the invisible gases which are created in his manure, and which he must search after as for hidden treasure. Let him learn that the very earth upon which he depends for a living, must breathe "through every pore," in order to be instinct with fruitful vitality, and that she grows poorer and poorer, weaker and weaker, like the mind of man, on superficial cultivation. Let him understand the currents of the waters and how they are to be diverted away from their chilling invasion of the tender roots of the young plants. Let him be educated in the science of manures, of ploughing, of drainage, and there will be added to the natural impulses within him, the strength of knowledge, by which he will feel a stronger attachment to his native soil, and a greater power to subdue and cultivate it. Let him be led to appreciate the true value of a fruit tree, and to understand how to take care of it. Let him learn what has been done to relieve labor by machinery, what methods of agriculture are systematic, economical, and as far as may be, profitable. Send this young man from your agricultural school, where theory and practice have combined to give him an education, and where the earliest impressions of his life have been surrounded and adorned with valuable information, back to the irregularly and half-cultivated farm of his father, and let us imagine what would be the result. Is it unreasonable to suppose that the rough, untrimmed and decaying orchards too often seen in this county, would begin to beautify his farm and reward his toil? Will not all that misapplied labor, which more than any thing else impoverishes our farmers, be systematized and made profitable? Might we not expect to see the scanty crops which are raked from reluctant hillsides, and which mock the cultivator, giving place to the luxurious products brought forth from the teeming earth by deep cultivation and an intelligent application of fertilizing stimulants? Might we not be confident of seeing such farmers as those we have described in this report, the rule and not the exception? If there has really been a "wasteful and exhausting system of cultivation" in New England, under which our land has so deteriorated, that, as has been said, "a thousand millions of dollars would be required to repair the effects" of it, how can we hope to bring our farms to their fertility, except by such a cultivation of agricultural zeal and agricultural knowledge as we have spoken of? A thousand millions of dollars improperly applied would make the matter worse. A thousandth part of that sum in the hands of a well-educated community, would more than repair the damage, for agriculture rightly directed is sure of its reward. The earth is never slow to recognize her benefactor, and while she still meets man with the "thorns and briars" of the primal curse, she has also a generous response to the appeal made to her bounteousness by "the sweat of his brow."

The cultivation of the earth is not the most discouraging and profitless of all branches of business. Its accumulations may be slow, and they may not be colossal; but they are not overloaded with those obligations and necessities which are the burdens of great fortunes, and which pinch as sharply as poverty itself. The wealth which it pours into the lap of a nation, comes not in swollen streams whose floods have drained a continent into arid deserts, but it flows down through a luxuriant country, fertilized by its thousand rills, whose waters bless all alike. In our farming population the extremes of poverty and riches are unknown. The one hundred and ten millions of dollars invested in farms in Massachusetts, support a class of people with whom the anxieties of too many other occupations are unknown; and when we see among them those who make farming profitable even with the light of experience alone, we have a right to expect that a good agricultural education will furnish a foundation to the business, which, while it elevates to a higher standard, will still preserve that equality which already exists. We believe that the farmers of Massachusetts conduce vastly to the happiness of her people; and we believe moreover that they are entitled to all the benefits which practical observations, science, education, the intelligence and industry of an efficient and indefatigable Secretary of the State Board, well-organized societies and a liberal legislation, can bestow.

In conclusion, we would recommend that the services of a competent person be secured by the society, to collect such information from the farmers of this county, as will serve the educational purposes to which we have referred. The valuable report made by the chairman of the committee last year, was the commencement of a plan which would secure a record of useful farming experience, without occupying the time of the busy farmer. We would recommend that the plan be continued. The benefit to be derived from it may be estimated by the avidity with which every practical farmer seizes hold of such facts as were then collected. We know of no better monument that the society could leave behind it, than the accumulation of knowledge thus incorporated into its Transactions There is no way by which those important pieces of information which now lie hidden here and there among our farms, can be drawn forth so thoroughly and economically as by this; and if any suggestion of ours should operate to impress upon the society the value of practical knowledge, and the propriety of this method of obtaining it, we shall feel that "our labors have not been in vain."

For the committee,

GEO. B. LORING.

HAMPSHIRE.

Statement of P. N. Richards.

The farm which I entered for premium consists of nine and five-eighths acres, situated in Sunderland, at the north end of the street, and within forty rods of the river. Six and one-half acres are first rate meadow land, the remainder being more elevated, is somewhat lighter.

I have cultivated as follows: Three and one-half acres in rye—one acre of which was so badly killed as to yield but little—one and a half in Indian corn, three-fourths in broomcorn, three and one-fourth in grass, the remainder occupied by my buildings, garden and potatoes. As the grass lot was designed for a pasture, when the second crop had started, I turned my cows upon it.

I have aimed to improve the land rather than to secure the largest possible crops, and have made constant efforts to increase the quantity of manure made on the premises. I have, the present year, made and applied twenty-four and one-fourth cords of barn and compost manure, and besides have purchased and applied sixty bushels of ashes, and 900 lbs. of gypsum. The gypsum—except a little for the broomcorn in the hill—with twenty bushels of the ashes, was put upon the grass ground. The barn and compost manure I apply to my planting ground, ploughing in the long manure from six to nine inches deep, and harrowing in the fine, at the same time sowing broadcast and harrowing in forty bushels of ashes. As my land has been thoroughly ashed in past cultivation, I used but few the present year. But on land where none had been previously used, I apply from twenty-five to fifty bushels to the acre, six or eight in the hill, the rest sown broadcast and harrowed in before planting. Formerly, I used more in the hill, but now think it unadvisable, as it injures the roots of the corn.

I now use lime only in connection with muck, finding by experiment that it will not pay. I have also satisfactorily ascertained, that leached ashes are worth as much as unleached in the hill for the present crop, but for the succeeding, the latter are preferable. I have experimented with salt, super-phosphate and poudrette, but use none now, prefering ashes to any of them.

The manure from my horse stable is thrown into the hog-yard, which is under cover, and mixed with a liberal quantity of muck or loam, and the wash from the house,—especially the night soil,—thus making a large quantity of first rate manure. My winter-made manure is wholly applied in the spring, when I return to the barnyard a liberal supply of muck or loam, taking care that there be a sufficient quantity to absorb all the droppings from the cattle during the summer, while in the yard, which is mostly covered with a roof. My stables are so constructed that the urine runs back to the rear of the stable, where it settles into a large quantity of loam under the floor. During the warm part of the year, if any unpleasant scent arises from my yard around the buildings, I immediately apply a fresh supply of earth, with occasionally a dressing of gypsum. In this way at the end of the year, I find myself in possession of a large quantity of excellent manure.

I seed to grass by two methods; one by sowing on winter rye grounds very early in the spring; the other by removing the corn from the ground when cut up, ploughing and harrowing the same, then sowing the seed—using eight quarts Timothy with ten pounds of western clover to the acre, harrowing or bushing in. Had I wet ground, I should plough after haying, and when dry spread on a coat of compost, and harrow in the seed.

My team work is done with one horse, except ploughing, for which I use two. The whole of my land is adjacent to my buildings.

I have fattened four swine, making 1,020 lbs. of pork, feeding upon a mixture of one-half corn, one-eighth rye, the rest broom seed, together with the milk and slops from the kitchen.

My fodder, except straw, with most of the grain, is spent on the place. For its consumption I add to my summer stock, cows that are to come in the following spring, which I find the most profitable stock I can keep.

The amount of farm products for the present year, when not weighed or measured, is derived from the estimate of two disinterested neighbors, valued at what it would fetch if sold on the place. Also the rent of the dwellings, garden, and keeping the buildings and fences in repair. I have charged all labor done on the farm by the day, including team work, together with board.

Products of the farm:—	
121 bushels of corn at 83⅓c.,	$100 83
725 lbs. of broomcorn brush, at 6c.,	43 50
2,310 lbs. of broomcorn seed, at 1c.,	23 10
25 bushels of turnips, at 18⅔c.,	4 67
Quinces and apples,	4 00
12 bushels of potatoes, at 50c.,	6 00
5¼ tons of corn fodder, at $5,	26 25
7 tons of hay, one at $14, six at $10,	74 00
2¾ tons of straw, at $6,	16 50
70 bushels of rye, at $1,	70 00
By pasturing cows,	13 33
Rent of the house and garden,	45 00
100 one-horse loads manure, at 75c.,	75 00
	$502 18

Expenses:—	
Labor, team and board,	$115 56
All kinds of seed,	7 11
Repairs of fences and buildings,	31 00
Interest on assessment,	147 00
Taxes,	17 00
Manure of all kinds,	86 75
	$404 42

Net profit, $97.76, the sum left me for tending stock and oversight of the place.

SUNDERLAND, April 1, 1857.

HAMPDEN.

Statement of S. Pendleton.

In presenting my farm and garden for examination, I feel a reluctance in calling your attention to the limited number of acres which I cultivate; and from the fact that, generally, none but large and decided model farms are considered worthy of notice. But I shall deviate from the general rule, knowing by experience and observation, that small farms make the largest relative dividend. In conformity with these views, I submit a sketch of my agricultural and horticultural operations the past season. My farm contains eighteen acres, lying in the Connecticut River Valley.

In the year 1836, I commenced on three-fourths of an acre, being a part of the original home lot of my father, consisting of one acre. In the year 1837, I bought three acres, a lot adjoining my own. This lot had been cultivated for years, and had not been ploughed for more than fifty years. It was in good condition, having had a top-dressing of manure about every year since my remembrance. The lot was ploughed the fall previous, and planted to corn and potatoes the following spring. The potatoes were very good; the corn proved a failure, on account of an early frost, but had as heavy a growth of stalks and green corn as I ever saw. This lot I have cultivated for vegetables for the Chicopee market, from that time to the present. I bought one other lot, adjoining this, consisting of four acres or more. This was in a bad condition for cultivation, being very uneven, and a portion of it swale grass; but I went to work and cleared it of its worthless apple trees, and spending over $40 in grading and levelling, I soon brought the lot in shape to work to good advantage. At the present time, this lot is down to grass, the remainder I cultivate to corn and potatoes. These constitute my home lot. I have on these lots eighty-five apple trees, that I have set from year to year, many of them being in good condition; also a good supply of pears, plums and cherries. This year has been unfavorable for apples.

I have another lot about one-fourth of a mile east, which I purchased at two different times,—one in the year 1843, containing four acres and fifty rods. This lot was in a very bad state, covered with alders, briers, and a heavy coat of moss. I went to work and cleared off the brush, &c., and ploughed it about eight inches deep, and manured from year to year, and in course of a few years, I raised from this ground over fifty bushels of corn to the acre; have cultivated this land to corn, potatoes, oats and grass to the present time. This year being unfavorable, the crop was poor. The potatoes were good.

The other lot adjoining I purchased a few years after, containing about six acres, including swamp land. This lot was in rather bad condition, but has been improved in appearance since it came into my possession, and has paid for the labor bestowed upon it. The swamp land I have reclaimed was all over to alders, high bogs, and covered with water, the brook being permitted to run all over the lot. I dug a deep ditch on the side of the swamp, which brought the brook from the lot in the ditch. I cleared the swamp of the alders, and mowed the same for litter; but the greatest value of this lot, is the muck it contains, which on a part of it is six feet deep. I mean to get out fifty or one hundred loads a year for composting. I cultivate the upland to corn, potatoes and oats. This year, one and a half acres to potatoes, about one and a half acres to cabbages, cucumbers, &c.; one acre to pease, beans, turnips. For potatoes, I used guano and plaster in the hill; for cabbages, manure in the hill; for pease, beans and turnips, guano and plaster were used in the drills. I put on about one hundred loads of muck for top-dressing. The soil on my farm is a clay loam. I have thus briefly submitted these statements for your consideration. I might say more, but enough for the present.

I shall now give you the produce of my farm and garden the season past, to November 7, 1857.

I have sold from my garden, vegetables, mostly in Chicopee, since July 3,	$612 12
Unsold at this time,	262 00
Amount,	$874 12

I do all my own marketing and collecting, keeping account of every day's sale from the commencement.

Expenses of the farm this year:—

One man 7 months, at $15 per month,	$105 00
One man 2 months, $18,	36 00
By the day, &c.,	15 00
My own work,	250 00
Horse and wagon,	50 00
Plaster and guano,	30 00
Garden seeds, &c.,	15 00

Team work hired,	$9 00	
Taxes on land,	16 00	
Interest on land, including swamp land, at $100 per acre,	108 00	
		$634 00
Profit,		$240 12

I shall, in conclusion, give you the produce of three-fourths of an acre of land, in pease, squashes, cabbages, &c.

50 bushels pease, early, average price $1.25 per bushel,		$62 50
10 bushels marrowfat pease, at 75 cts.		7 50
600 cabbages,		18 00
2 tons marrow squashes,		50 00
2½ tons crookneck squashes,		55 00
6 bushels tomatoes,		4 00
		$197 00
Expenses:—		
Ploughing,	$1 00	
Planting, hoeing, &c.,	8 00	
Picking pease,	7 50	
Interest on land and taxes,	10 00	
		$26 50
		$170 50

CHICOPEE, November 7, 1857.

NORFOLK.

Report of the Visiting Committee.

Early in the season this committee sent circulars to the trustees of the society in all the towns of the county, in which circulars they offered their services to examine whatever might be presented, and to meet the members of the society for discussion and mutual information upon any subject relating to the interests of agriculture in the county. From several of the towns favorable answers were received, and at appointed times the committee fulfilled the task they had assumed. They were cordially welcomed and hospitably entertained by the trustees and other members, and every facility was afforded them to learn the condition of the agricultural interests in the several towns. They could not but be gratified in noticing the evidences of thrift, order, comfort and intelligence in many farmers' homes, where the people are seen to the best advantage. The results of labor are here found in the tranquil enjoyment of life under circumstances as favorable as usually fall to the lot of mankind. There are but few positions more desirable than that of a farmer, who owns the soil he cultivates, and is capable, by his education and means, of developing its resources. He has a powerful and permanent motive to labor, in the hope of leaving his farm in increased fruitfulness to his children.

To give the society an idea of the impression which was made upon us by our visits to a few scores of farmers, we make the following brief extracts from our notes, not with a view to crops raised or to specific improvements,—these will be noticed further on in this report,—but to convey our general ideas of the character of farmers and appearance of farms at our examination of the various premises.

Mr. C., a thinking, reading, careful farmer, is making gradual but thorough improvements in fields, walls, buildings and stock. Had a true farmer-like reception in his pleasant home; also an instructive interview with seven or eight townsmen. Made and answered inquiries, found a good spirit, and obtained four new members for the society.

Mr. P., a gentlemanly, shrewd and careful farmer, who improves cautiously, and makes money.

Mr. P., a thriving farmer, reclaims meadows, has fine fences and buildings; is a hard-working, judicious, calculating man, with much of the genuine Yankee spirit.

Mr. M. cultivates for market; shows good judgment and skill. Has a true help-meet in a wife, a remarkable woman, who takes care of the garden, and raises flowers, vegetables and fruits. No pretensions, but well-managed farm and good crops.

Mr. N. exhibits great knowledge and care of trees and vegetables; has the best garden we have seen, with native and foreign fruits. Every thing here is for home comfort and enjoyment.

Mr. D. has been improving his place for many years, and presents in its general appearance and in the abundance of its products, a strong motive to young men to imitate his example.

P. S.—This town has many fine farms and good men, not enough appreciated.

Mrs. M. carries on a large farm with good judgment and success; makes improvements, and brings up her boys to work; has great enterprise and industry.

Mr. A. is a skilful and prosperous farmer; has made great progress within ten years; gives every indication of honest work and good management; deeply interested in the prosperity of our society.

Mr. B., a fine specimen of a young, diligent and thriving farmer; has an excellent orchard of five hundred and fifty trees; his farm a first rate school for a Yankee boy to learn the trade. Such men honor agriculture.

Mr. M., a genuine New England cultivator, whose grounds exhibit good management and yield large crops; makes careful experiments; every thing in prime order within doors and without; fences well-kept, implements abundant and of the best quality. Passed a pleasant and instructive day in this town, which has as many good farms and farmers as any in the county.

Mr. K. has excellent and well-cultivated land, new and convenient buildings, orchard of five hundred trees promising well. This farm is a credit and benefit to the town.

Mr. S., an enterprising farmer, who reads, thinks, experiments, keeps exact accounts, and goes on cautiously and with good results. Farm small, but well tilled and clean.

P. S.—This town has some capital farms and cultivators, not half so well known and appreciated as they should be.

Messrs. M. have fine farms, not large but well tilled; men of enterprise, intelligence and skill. The example of such men is a benefit to the whole community.

Mr. M., a young farmer, who improves his place with much judgment, and gives promise of unusual success.

Mr. G. has good buildings, garden, fruit and vegetables. Every thing within and around neat and comfortable. Prime specimen of prosperous farmer.

Mr. A. does not believe farming profitable generally, but acts as if he did; reclaims meadows and raises great crops of grass;

and in every department shows judgment, fine stock and fair crops.

Messrs. S. own and cultivate a market farm; as good examples as this county furnishes of industry, order, neatness and success. Farm small, but thoroughly worked and profitable; probably more profitable than it would be if twice as large.

We might multiply such extracts from our notes. There are hundreds of similar farms and farmers in the county. We have learned to hold in high respect, the men who reflect so much credit on this noble vocation, and show that on our soil persevering industry, guided by intelligence, can produce results that compare favorably with those of any part of the Commonwealth. We have a much higher opinion of the farms and of the skill and industry of the farmers in Needham, Dover, Medfield, Medway, Franklin and other towns in that section of the county, than we had before. We saw many farms, where the management would do credit to any part of the country, and where the example set is doing a silent yet certain work in promoting improvements that add much yearly to the productiveness of the farms. But we are prompted to add, that the improvements already made should be regarded as incentives to greater efforts. The much that is done is by no means the measure of what may be done. Especially in the raising of stock, this part of the county has uncommon facilities, which do not seem to be fully improved. Its good pastures and mowings might be made to increase the extent of its grain fields. We are scarcely satisfied with what we so much admire, so impressed are we with the conviction that even better things are within the reach of these farmers. On the other hand, we see many instances of poor farming, poor in view of the progress of mankind in other pursuits. In manufactures and the mechanic arts, men would soon fail if they exhibited the same indifference to fundamental principles and scientific processes, which characterize some of the cultivators of the soil, who walk in the old paths without so much as an inquiry whether there are new and better, who remain stationary or are retrograding amid the general marvels of the age.

The best evidences of progressive improvement among the farmers of our county are, first, an almost every where expressed desire for it and faith that it may be attained. Few are found who do not believe in the necessity and the practicability of making their land more productive with the same amount of labor; who do not endeavor to apply, more or less, the principles and the results of science to the cultivation of the soil; who are not willing to be instructed and to profit by the successful efforts of others. To foster this spirit is one of the chief aims of our society.

Second. The superior information exhibited by practical farmers on topics connected with their business. This committee learned much more than they imparted from their intercourse with the cultivators of the soil, who showed unquestionable proofs of increased reading, reflection, and careful experimenting; who could explain the facts and the philosophy of growing crops, raising cattle, and the application of manures. Such men uniformly have a good opinion of their calling. They have too much self-respect to degrade it by unworthy and disparaging comparisons with other pursuits. They feel that it is an honorable employment, which, by judicious management and economy, can be made profitable. Without these opinions they could scarcely follow it themselves or recommend it to their children.

Third. The increase of books and papers devoted to agriculture. Farmers are not afraid, or ashamed, or disinclined to learn from the observations and the experience of others. For the same reason that they would imitate the successful example of a neighbor so far as it was applicable to their circumstances, they will adopt the same improvement if recorded in a book, and especially if the same result has followed from many recorded experiments. Good farmers have no quarrel with theorists; for, while they know that most of the truths in agriculture are the results of practice, of trials made for ages by men who knew nothing of the philosophy which underlaid them, yet they are sufficiently intelligent to admit that they can work more successfully as well as more satisfactorily if they can understand that philosophy—if they can trace effects to their causes—if they can ascertain the precise connection between various soils and the crops that would flourish best upon them—if they could determine the exact value of each kind of manure and the land to which it was most adapted. These and similar things are what they desire to know. Hence they study agricultural books and papers, and while they receive the results of others' studies and labors with characteristic caution, they are not slow to adopt whatever promises to be useful; for, if pecuniary gain is their great motive to labor, they are aware that they must choose the true principles of culture, and follow the certain laws of nature as those laws have been ascertained by careful observation and expounded by science. They are disposed to ask not with how little information we can get along, but what is the best method of reaping the reward of labor bestowed upon the earth?

There are many, substantially, of this kind, who admit that "there are no accidents in nature. What we fancy such are the offspring of ignorance." Agriculture, like every thing else, is governed by certain laws, the right knowledge and observance of which are the only conditions of success.

The fourth evidence of the progress of agriculture in the county, is the actual increase of the value of farms. We do not refer solely to cash value in the market, in these times of pecuniary embarrassment, but to this fact, that in consequence of the better tillage they have received, they are capable of producing larger crops in future. Any one familiar with the general appearance of the county knows that important additions have been made to their value in reclaimed meadows, in improved mowings, in better pastures and implements; that is, in the means of making them more capable of production hereafter. A part of the profits have been invested in the business for the purpose of securing a greater income. This is the policy of good farmers, and distinguishes them from those who skin the land for the largest immediate returns.

Take an example that covers a long term. No doubt there are scores of such, but one has frequently come under our notice that deserves to be mentioned as an argument that under certain conditions, farming is as profitable as any other business employing the same amount of capital and labor. A man whom we will call Mr. C, upwards of forty years ago bought a farm of between thirty and forty acres. The land was exhausted, the fences down, the buildings dilapidated. He paid only a part of the price, and began in debt. He laid good walls, dug drains, cleared up meadows, and made mowing fields where bushes had grown. He kept a horse and four cows, and young stock. He brought up eight children well, taught them to work, and gave them the best literary education the town could supply. They are all well settled, thriving and respectable citizens. He has added to his farm both tillage and woodland, and put money in his purse besides. This was done by hard work, temperance, and economy without meanness. Our friend and his equally worthy wife have lived useful and happy lives, and in a vigorous old age sit under their own vines and apple trees, and enjoy the friendship and confidence of the community. Fortunately this is not a very rare instance. Norfolk county and New England can show many such men and homes; men whose character is our glory,—homes, the abodes of peace, whence are radiated into society the best influences of morality and religion.

We estimate at its full value the impulse given to agriculture by rich and enterprising men, who cultivate large farms and make farming attractive. Many such persons, from other walks of life, of enlarged views, have been drawn into the country by the charms of rural occupations. We have our full share of these valued coworkers. They establish funds and premiums; they plant trees and hedges; they introduce the best cattle and implements, and new varieties of fruits and vegetables; they experiment with manures, in which their successes and failures are alike profitable to the community. But they do not till the land nor contend with the difficulties of the laborer or the small land holder. They do not depend on the proceeds of farming to maintain their families. It is to them a pleasant and healthy pastime. But in the example of the working farmer given above, there is *encouragement* to the young man, who shudders at the prospect of years of labor and looks longingly to the West. It is a hard life, yet not painful, not unpleasant, not without many compensations. Is it not better to live at home, in a land of schools and churches, and among old friends, and to work for these advantages, than to encounter the sickness and to experience the inconvenience inseparable from the settlement of a new country?

The working farmers of this county, who annually increase the value of their farms, do not depreciate agriculture by representing it as an undesirable employment. A comparison of any number of such farmers with an equal number of men who started with them in business as mechanics or traders, will show that the balance is not always with the latter. Great fortunes are not made, but a comfortable support, exempted from the fluctuations incident to mercantile pursuits. May we not hope that the present financial difficulties will turn the attention of young men from the over-crowded paths of trade to the more natural, and in the long run equally profitable business of farming; more natural because agriculture is the foundation of the support of a being sprung from the earth and living upon its bosom; equally profitable, as may be proved by a comparison of the results of various forms of industry extended over a term of years. Let them bring the same enterprise and skill to farming, which they display in other lines of business, and rural life will be attractive and delightful.

The potato crop has almost every where suffered from rot, and from the unproductiveness which the disorder has occasioned. A great variety of experiments have been made to avoid the rot, and to increase the crop, with generally unsatisfactory results. It seems to be tolerably well established, that strong and rich manure promotes too rapid fermentation, and while it increases the growth of the tubers causes them to decay. It may also be stated that potatoes have usually done best on light land, old pastures, or fields recently reclaimed from the forest. Also, that potatoes planted early succeed better than those planted later. Perhaps the same result would be attained if they were planted very late; for if the object of early planting is to secure cool, moist weather, that may be had in the fall as well as in the spring. The idea is that the disease is caused by rust, and that rust is occasioned by warm and sultry weather, and the object of very early or very late planting is to avoid the rust at a time when the vines are most easily affected by it. Whether any importance is to be attached to this view, every farmer must determine from his own experience.

One of our most judicious cultivators planted his potatoes without any manure and covered the ground with meadow hay and straw. This prevents the growth of weeds and keeps the land from drying in warm weather, and saves the labor of hoeing. Another saturates the straw with brine and thinks it not only promotes the growth of the tubers, but prevents the rot. Another puts ashes and lime in the hill, with excellent results, using no other manure. Another ploughs in barnyard manure and puts none in the hill. Another showed a peat-meadow planted with potatoes. The land being too soft for the feet of animals he dug holes, put in each a handful of stable-manure, and with little labor had an immense crop, at the rate of five hundred bushels to the acre, and this without rot.* Another in strong, rich land, planted black Chenangoes, with strawy manure in the hills, and the potatoes rotted badly. Another planted with a handful of horn shavings in each hill, and raised a good, sound crop. Another sows ashes and plaster broadcast over the tops when they nearly cover the ground, and believes that this treatment prevents the rot. Others plough in guano for the same purpose. It is generally thought that guano, lime, phosphates, horn shavings and other similar manures have a less injurious effect than strong stable or barnyard manure,—though even those must be well mixed with the earth and not suffered to come in direct contact with the seed.

No kind of potato is safe from disease. We hear it stated every year that this or that sort of potato has not rotted. That may be true for a single year, or for a few years, but in process of time, every kind degenerates in quality and yields a smaller crop. This season, the black Chenangoes and Davis seedlings, formerly the soundest varieties, have proved no exception to the general rule. We have seen no reason to modify our opinion expressed in a report several years ago, that the potato, from long cultivation and the widest possible departure from its natural habits, had commenced a process of deterioration which could not be prevented in any kinds now under culture.

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* Since the above was written, the Patent Office Report on Agriculture has come to hand. From a hasty perusal, we judge it to be the most valuable volume that has issued from that office. On page 197, in an essay on fertilizers, by Simon Brown, is the following passage: "Muck is suitable for any lands, and may be used to advantage even on its own native beds. Drain it so that no water shall stand permanently within fifteen inches of the top; plough and add alkalies in the form of ashes, lime or plaster, and it will produce abundantly of almost any crop of the farm. I have seen garden vegetables growing luxuriantly on it; and since the rot has affected the potato, that indispensable esculent has been raised on original muck beds with *better success* than on any other land."

We have no expectation of finding a substitute for the potato, and therefore we look for its continued cultivation under such modifications of the present practices as future experience may show to be advisable. It has been suggested that the Chinese yam might be raised with profit; but the experiments that have come to our knowledge furnish little encouragement. The following note from one of our careful cultivators, will show what has been his success:—

Stoughton, Oct. 19, 1857.

Rev. J. M. Merrick—Dear Sir:—I received your note of inquiry in relation to my success in the cultivation of the *dioscorea*, or Chinese yam.

My experience has been too limited perhaps to form a correct opinion of the value of this tuber for cultivation; but from the experience I have had, I cannot recommend it very highly. I first purchased a seed tuber, about the size of a pea, in the spring of 1855. This was planted about the first of May, in the open ground, in fair soil, not rich, and produced a tuber about a foot in length and an inch in thickness at the largest end. About the middle of May, 1856, this was cut in pieces about an inch long and planted in a rich, deep soil. These made their appearance above ground, after a considerable time, and were about half of them hoed up by my workman, he not knowing what they were. The plants from those remaining produced tubers varying from six to twenty inches in length, and from the size of a pipe stem to two inches in thickness. These roots were cut in the same way, and planted about the same time as last year, with the same results; many of the plants not appearing above ground until late in the season.

The objections to the cultivation of the plant are, first, the difficulty in starting it. It must be started in a hot-bed, to secure a decent sized tuber. Second, the trouble of preparing the soil to sufficient depth. Third, the great labor of digging them, the largest part of the tuber being at the bottom, while one-half or two-thirds of the upper part is little larger than a pipe-stem; and last, though not least, their poor quality, as compared with the potato for table use, they being watery and nearly tasteless.

With these objections, I think they cannot be used as a substitute for the potato, even if the potato should be entirely lost by rot.

The tuber, like the potato, might by cultivation be improved, but the manner of its growth would certainly be a great objection to its general cultivation.

I will send you some tubers the first opportunity.

Very respectfully, yours,

LUCIUS CLAPP.

In various parts of the county sweet potatoes have been raised of good quality and in remunerating quantities. Instead of detailing the processes of different persons, we prefer to annex the following letter from Mr Loring Johnson, whose long residence at the South, and whose skill in matters of gardening, enable him to speak with confidence:—

WALPOLE, Oct. 24, 1857.

REV. J. M. MERRICK—Dear Sir:—In answer to your inquiries as to the mode of culture and the yield of the sweet potato, I would say that I have cultivated this crop to a limited extent for the past three years, and have secured a yield of from 150 to 200 bushels per acre; varying in quantity as well as quality with the season—one of high average temperature and comparatively dry, suiting them best.

A light sandy loam with a southern aspect, is best adapted to this crop. The ground should be prepared with a dressing of well-rotted stable manure, ploughed in. If any thing further is needed, apply ashes to the hill, either before or after planting the slips.

As the tubers strike down to a considerable depth, the soil should be worked deep, and the hills elevated a foot or more before setting out the plants. The hills should not be less than four feet apart.

The sweet potato succeeds best when raised from slips or sprouts. These can be obtained in the market, or raised from seed potatoes usually to be found at seed stores in the spring.

Potatoes from which slips are to be raised should be placed in a hot-bed, between the first and the fifteenth of April, about one inch apart, covered at least two inches deep with light loam or mould, and kept moist but not wet.

Slips, when from four to six inches high, are ready for transplanting. The larger ones can easily be drawn from the bed without disturbing those not yet grown, by gently pressing the ground with one hand, and drawing the slip with the other.

The most suitable time for transplanting is between the 20th of May and the 1st of June. Three slips are placed in each hill, or if planted in drills place them about a foot apart. The vines will begin to run early in July, at which time the hills should be cleared of weeds and put in good order. After this they will need no further culture.*

Sweet potatoes should be dug soon after the first severe frost, and if intended for keeping, should be packed in thoroughly dried sand, and placed in a warm and dry situation. In this way they may be kept till the latter part of winter.

Very respectfully yours,

L. JOHNSON.

Of Indian corn, the average crop through the county has been a little less than usual. Wet weather and early frost damaged the corn in some places. Some seed rotted in the ground, and the fields were planted a second time. Still there have been yields from fifty to more than a hundred bushels to the acre; and the general opinion is undoubtedly correct, that no other crop is so well adapted to our climate and soil. Every farmer believes himself competent to grow corn to the best advantage. Suggestions from us may, therefore, seem superfluous. Nor do we claim superior wisdom or practical skill. But familiar with the practices of the best farmers in the county, and with different results, we may be excused for offering one or two hints, not of things new but of things neglected. Every one knows that corn is a rank feeder, extending its roots in all directions where it finds nutriment. Hence the necessity of deep ploughing and thorough pulverization of the soil. Subsoil ploughing has been found beneficial by supplying moisture in dry weather, and furnishing room for the extension of the roots. The more thoroughly the manure is mixed with the soil, the better chance has the corn of exhausting its benefits. We have noticed several fields, this season, that yielded on good ground scarcely twenty bushels to the acre, owing to imperfect ploughing, which left the soil in lumps, and to coarse, unreduced manure. It was difficult to cover the manure, and much of it was exposed to the air and sun. "Pulverization of the earth, and the mingling and perfect incorporation of the manures with the soil, may be regarded as the fundamental principle of judicious and successful culture" of this crop. Under any circumstances, in the barnyard or in the field, it must be considered bad management to let manure lie unsheltered. Its exposure to sun, rain, frost and wind, must diminish its value by carrying away its most fertilizing properties. The use of coarse manure for corn, so coarse that it must be partially wasted, is the more to be regretted because that which is best adapted to this crop, barnyard and pigsty manure, is produced at great cost, and but few farmers have more of it than they need for this very purpose.

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* The Committee has been favored with the following note from Mr. E. C. Larrabee, of Salem:—

"In a sandy soil I set, the present year, between four and five hundred slips on a piece of ground ten feet by one hundred and twenty, from which I obtained a little more than two barrels. I used horse manure and ashes. Last year my potatoes were considered, by competent judges, to be equally as good as those from the South. This season they were not quite so good as usual, in consequence of the cool and wet weather."

The success of Mr. Caleb Bates, of Plymouth county, is well known. In a recent circular he says: "In flavor, the potatoes raised in Plymouth county are sweeter, on an average, than those brought from the South, as hundreds will testify. In yielding, they far surpass the common potato, producing from three to five hundred bushels to the acre, with good treatment." Mr. Bates' address is Kingston, Mass.

When guano is used with corn, the necessity of the finest pulverization of the soil is obvious, that the manure may come into the closest possible contact with all the soil; and thus while more nutriment is drawn from the atmosphere, less is wasted from that which we apply to the earth. When we remember that ploughing is the primary step in the whole business, and that it is of the first importance that the air, and the rain, and the heat of the sun may thoroughly and easily find access to the soil,—that crops having tubers may have ample room and facilities of expansion, and that corn will grow nearly as far beneath the surface as above it if permitted, it will not be easy to overestimate the attention that should be given to this subject.

We have heard of a singular experiment in the choice of seed. A farmer planted only the corn from the small end of the ears, choosing such as were well filled out; then only from the middle of the ears; then only from the big ends. After ten years, he found that in seven years of the ten the crop from the small ends was the largest and best.

During the past season, the corn-planter has come considerably into use in this county. One of our friends finds it satisfactory on mellow, well-tilled land, dropping the corn evenly. Another says, that in some hills he had eight or ten grains, in others one or two. Upon inquiry, we found his land was very rocky and uneven. One farmer says: "I regard the introduction of the corn-planter among the most valuable improvements in the culture of this crop. This machine immensely economizes expense and time." It is obvious, however, that it can be used to most advantage on smooth, well-tilled land, and where the manure is ploughed in. Is not this an argument for bringing land into such a condition?

When for any reason a farmer is convinced that he may with safety and profit leave the beaten track and lay out a new path for himself, he usually encounters the ridicule of his neighbors. Yet the latter are constantly receiving good impressions, and before they are aware of it, they are found practicing the very things which they condemn. Perhaps this is more apparent in the corn crop than any other. It was asserted a few years ago that it was impossible to raise a hundred bushels of corn to the acre, by men of the greatest experience in farming. And when the fact could no longer be denied, it was attributed to a combination of favorable circumstances, which might never occur again. This year there are four fields in the town of Milton that yield more than a hundred bushels each per acre, and one that has produced, after the most accurate tests of the committee on grain crops, one hundred and twenty bushels. There were also many in other parts of the county which looked very promising, the exact yields from which we have not learned. Facts of this kind are a sufficient answer to alleged impossibilities.

Within a few years the practice has been revived of raising wheat in this county. Every real practical farmer ought to raise every thing towards the support of his family, which he can raise without actual loss. Possibly in some one year wheat may fail; but in four years out of five success may be considered certain. The flour may not be as white as that from the West, but it is as sweet, and it is the farmer's own. By comparing the returns from Norfolk county with those from the State of New York, we find that the average crop here is full as large as there. We read of yields of seven, ten, twelve, twenty bushels per acre, and in unusual cases of forty bushels. With us the yield is rarely less than twenty, and in one instance it has gone as high as thirty-two. Mr. L. Clapp, of Stoughton, has averaged twenty-two bushels of spring wheat for four years. Capt. Mason, of Medway, has averaged twenty bushels for ten years. T. Clarke, Esq., of Walpole, has this season raised excellent wheat at the rate of twenty-five bushels to the acre. We think he might have had five more if he had seeded higher. Of course every farmer must judge of the necessary amount of seed from the character and condition of his land. Perhaps the average will be from five to six pecks. We have heard of several good yields in the lower part of the county, the details of which have not yet reached us.

Barley is not extensively raised in this county. A few good crops have come to our knowledge. It is considered by some a very profitable crop for hogs, and its straw brings more than half the price of English hay. Barley is also highly esteemed as fodder, when cut at the right season. It is a powerful feeder and requires a warm, strong soil, well manured, with a previous hoed crop, and kept clean. Rank, green manure should be cautiously used, for it tends to cause the barley to run to straw, and increases its liability to rust. From two to three bushels of seed must be sown early in the spring. The crop must be gathered in good season, because if delayed, it loses by shelling out.

Our grass crop was large and good, though seriously injured by rain during the latter part of the hay-making season. It is gratifying to observe in every direction, improvements in the culture of grass fields, especially these two; first, the reclaiming and seeding of meadows; second, the breaking up and cultivating grass land every third or fourth year, instead of eking out poor crops by top-dressings. Much is also done in raising pure seed, by which we avoid the weeds and foul grasses that are introduced by careless cultivation. Those who are careful of the health of their horses take pains to extirpate weeds from grass fields. Next to thistles, perhaps the most troublesome is white weed. This is found in great abundance in the lower part of the county. It is occasionally seen in the upper and western parts; but the farmers consider it for their interest to extirpate it, either by pulling it up by the roots or by frequent ploughing. Cattle will eat it freely, if cut early in the season, but it generally blooms before the grass is fit to be cut. Grass being the most easily managed and most profitable of our crops, whatever hinders its growth or impairs its quality should engage our earnest attention.

The principal improvement in the cultivation of grass that is now attracting the attention of the agricultural public, is drainage. This has long been practiced on a large scale in England, and with such success, that in thousands of instances it has doubled the productiveness of land at a comparatively small expense. Not swamps and meadow lands alone, but ordinary uplands, a large majority of which are found to repay the labor and expense of thorough draining. Every farmer is aware that cold water standing around the roots of his plants will kill them. They are killed in immense numbers, every year, by this cause; and the evils of a backward season or of an early frost may be traced, in many cases, to the water which freezes upon the surface or stagnates below it. And none the less in our hot climate than in cooler ones; for, although we are liable to extremes of heat and drought, yet the average quantity of rain falling here is greater than in England, where rainy days are more numerous.

We do not propose to enter into the details of this subject—neither our practical knowledge or skill justifies such an undertaking. But we wish to call the attention of our society to the experiments and observations of others eminently qualified to instruct us. In the Patent Office Report for 1856, just published, is an Essay upon Drainage, by the Hon. Henry F. French, of Exeter, N. H. This essay is a valuable contribution to agricultural literature.

We will briefly state the several points that are illustrated by the author. From these it will be seen that a new and wide field is opened, that promises to be productive of the greatest benefit. According to Mr. F., the advantages of drainage are these: That it deepens the soil, furnishing room for the roots of cultivated plants; that it promotes pulverization; that it prevents surface-washing; that it lengthens the season for labor and vegetation by causing the ground to dry off early in the spring; that it prevents freezing out, by leaving the root-bed of the plants so free from water that they retain their natural position; that it prevents drought by increasing the capacity of the soil for capillary attraction; that it warms the soil, increasing its temperature often as much as fifteen degrees; that it supplies air to the roots; that it promotes absorption of fertilizing substances from the air; that it improves the quality of crops. After the discussion of each of these points, Mr. F. adds a chapter on the methods of drainage, the whole forming a complete and important addition to our knowledge. We commend it to the careful study of farmers. By cheap and cautious trials they can easily test its value.

Millet is fast coming into use as food for cattle and horses, which eat it readily. A livery stable keeper, who raised a large crop this season, informs us that he finds it profitable, both in regard to its nutritious properties and the facility with which it may be grown. It is cultivated in the same manner as oats, and should be cut before the seed is perfectly ripe. A western farmer has this year raised a hundred acres of millet.

In travelling over the county we cannot but notice the great want of manure, and the want of a knowledge that it may be bought and used in many cases with profit. It is believed that much time which is now partially lost, might be advantageously employed in increasing the compost heaps by the addition of mud, peat, leaves, straw, lime, ashes and any thing capable of decomposition. A large part of the land in this county does not produce more than half of what it might do were it well manured. One farmer says: "All my outlays for manure pay great interest on the amount invested." Is not this the usual experience? All admit that the principal drawback upon farming is the want of sufficient fertilizers, and how to obtain them should be our main study. While the value of guano is acknowledged,—especially on light lands or old and worn out soils for the purpose of recovering their exhausted energies,—still, the main reliance of our farmers ought to be on their own barnyard and pigsty; not only because this comes more directly within the scope of their means, but also because it is believed that their home-made manure, obtained by keeping live stock, is better adapted to raising grains and grasses, and is more useful in preventing the exhaustion of the soil. The value of this may be greatly increased by keeping in the barnyard an abundant supply of meadow mud, which is found on almost every farm. The contents of the privy vault, and soap-suds and other wastes of the kitchen should be incorporated with the heap. The lime, or chloride, or plaster, or charcoal, which are used to render innoxious the gases of the privy or barn, are of exceeding value as fertilizers, and a liberal use of them will prove profitable. But the meadow mud, which can be had cheap and in large quantities, is the main absorbent of the fertilizing properties of other manures; at least, it is that on which our farmers may chiefly rely. Nature has provided it in abundance, and experience has shown that no other thing involving the same expense, is so advantageously applied to the land. In the fall and early part of winter it can be drawn into the barnyard, frozen, pulverized, mixed and trodden into the stable manure by cattle. It not only retains the fertilizing gases that would otherwise escape, but it brings into activity the elements of the soil with which it is united. We cannot too earnestly urge upon our farmers the importance of increasing in every way their stock of manure. He who uses the most manure can keep the largest number of animals. He who keeps the largest number of animals can raise the most grain, and maintain his land in the best condition.

Of special fertilizers, we have little to add to our former reports. Guano still maintains its reputation. One of our correspondents, whose statement was published in last year's report, writes: "My experiment with guano on grass land for this the fourth year since its application, has yielded by careful weight just twice as much as the piece adjoining which had none." This is in accordance with the testimony of another intelligent farmer, who informs us that the good effects of guano are distinctly visible after five years.

An experiment with salt and lime mixed with meadow mud, on a pretty large scale, has been made this fall by one of our farmers. The result must be looked for in other years, though it is right to add that the grain that was sown came up well, and now looks flourishing. A hundred bushels of Turks Island salt were used in this trial.

In some parts of the county the crop of apples was very small, chiefly in those towns where the least attention has been paid to fruit-growing; in others, the crop was good. The bloom was full, but the wet and cold weather which immediately followed caused the young fruit to blast and fall. Some persons had thought that they perceived a tendency towards a general deterioration of apple orchards. Fortunately the farmers do not participate in this idea. Not a single fact strikes the traveller more agreeably in every town, than the sight of young and flourishing orchards, giving promise of future harvests. We could refer to many farms which, within ten years, have been increased in value to the extent of a thousand dollars solely by the planting of orchards. There is no danger of overdoing this business. The demand is steady and increasing for good apples at remunerating prices. One farmer infers from his experience that an acre of apple-orchard, well tended, will yield more profit than four acres of grass. All fruit that is not fit for market or for consumption in the family, may be turned to advantage in feeding stock.

The soil for young orchards should be strong,—no matter if rocky,—ploughed deep, well drained, and kept in high cultivation for several years. The most thrifty we have seen are in very rocky land that had been used for a long time as pasture. Our experienced fruit-growers recommend large holes for the young trees, filled with fine compost and rich soil, but never with rank and green manure. A common error is to set the trees too near to each other. In favorable circumstances they spread rapidly, and if placed nearer than thirty feet of each other, will in a few years interfere. A mulching of leaves or straw is advisable in dry seasons. Too much care cannot be taken that the land be well drained, for the cold water stagnating about the roots is peculiarly injurious.

Nothing is more fatal to an orchard than the slovenly pruning we often see practised by inexperienced hands,—large branches hacked off, long stumps left to imbibe moisture, and cartloads of limbs carried off at once. It would seem to be the dictate of common sense that trees should be pruned moderately every year, to remove decayed limbs or an undergrowth of sprouts, and to admit the sun and air into the tops. In our hot and dry climate, however, this last purpose may easily be carried too far. The details of this process, as well as the fit time for the operation, may best be learned in the school of some experienced nursery man or fruit grower, of whom no county has more or better than ours.

The attractive exhibition of pears, for which our fair is so celebrated, provoked the question, Why do we find so few pears in most of our towns? Nearly all are raised in three or four towns, while in the others scarcely a pear tree is to be seen. Not because this fine fruit is not appreciated, but from an apprehension of some peculiar difficulty or risk in its culture, or from the supposition that pear trees require many years to produce a full crop, or from a failure that may have followed poorly conducted experiments. Nursery men raise their trees on the best land, deeply spaded, and thoroughly manured. The mistake which buyers make is to plant their trees on a poor soil, half manured, and to neglect pruning and heading in. In two or three years the trees die, or live a miserable and stunted existence, and the farmer complains that they did not correspond with the nursery man's statement. How could trees so managed be expected to prosper? Separate treatises on the culture of this excellent fruit, may be found in books specially devoted to pomology, with catalogues of the various kinds best adapted to our soil and climate.

In some towns, Foxborough, Franklin, Medfield, Needham, and a few others, enterprising men have done something towards adorning their respective villages and road-sides, by planting shade trees. During the present year many fine trees have been planted. A report from Grantville will be found in another part of this volume. We have overcome the difficulties incident to a new community struggling for existence, and have the means of doing something to gratify a refined taste, and to improve the looks as well as the fruitfulness of our county. And what objects are more beautiful than the shrubbery that adorns our dwellings, or than the beeches, maples, elms and evergreens that line the highways. Who does not greet with satisfaction a village, the nakedness of which is relieved by these permanent memorials of public spirit? And who has a better right to be considered a public benefactor than the man who provides for the comfort and health of future generations?

Almost every farmer planted a little of the Chinese sugar cane, last spring; some from curiosity, others with a view to fodder, and a few, perhaps, in the hope of supplying themselves with home-made molasses. Every where the cane grew and flourished. There is a diversity of opinion respecting its value as fodder, some approving it, but the majority of those who have conversed with us do not consider it equal to sweet corn fodder. It is less sweet and juicy, the cattle do not eat it so readily, and waste more of it. The buts are fibrous and hard. At the fair, several specimens of good sirup were exhibited, a detailed account of which will probably be furnished by another committee. We have heard of no extensive operations in this county. In Middlesex, Mr. Hyde, of Newton, has entered largely into the manufacture of sirup, and is not without hope that he may overcome the difficulties hitherto experienced in causing it to grain. The public are already familiar with the results of his enterprise, through the daily papers. We hope that his success will be equal to his enterprise, and that he will have the honor of introducing a new and profitable branch of business.

During the past season mowing machines have been somewhat more used than the year before. In several towns in our county, however, there is not one. Although every advantage claimed for the mowing machine may be admitted, yet the farmer hesitates, perhaps wisely, before he invests his money in its purchase. He acknowledges the inferiority of the scythe, but he knows what he can do with it. He knows how to repair it. He knows what is the average cost of cutting an acre of grass. He remembers that the first cost of the mowing machine is large; that it is complicated and liable to get out of order; that it may occasion diminished or irregular employment of men hired for the season or the year; that there are mornings and odd times when they might do some mowing to advantage. He says his farm is small, the land uneven; that it has rocks and orchards, and will scarcely pay for the use of the machine. It is right to take these things into consideration. But it should not be forgotten that one machine would answer for a dozen farmers, and that three or four hours' use of it would give the farmer employment for two days in making his hay.

The objects of improved machinery on a farm are two: First, to diminish the cost of the production of crops; second, economy of time, particularly when the weather is fine, the crop heavy, and there is danger of injury if its removal be delayed. Manual labor is necessarily limited, especially in this country, which by its extent and fertility invites laborers to disperse over wide territories. There is no permanent class of laborers; the laborer of this year may soon be the employer. Hence, labor commands good pay, and hence the necessity of machinery to fill the place of labor dearly purchased.

Farmers, both from their isolated positions, and the consequent absence of a common opinion, are perhaps less apt than others to see the necessity of making changes in their tools or modes of operation. Accustomed to use a particular set of implements, and not having frequent opportunities of comparison, they either become familiar with their imperfections or do not see them. Hence the difficulty of introducing real improvements. But the inventive genius of our mechanics, and the absolute necessity of machinery in large operations are compelling farmers to look to their interests, convincing them that they can prosper by farming only when they place it on the level of the most advanced arts.

There is room for improvement in mowing machines, and it is easy to see that improvements will be made with a view to diminish weight, or to reduce friction, or to prevent derangement, or to bring the implement within the reach of men of limited means. Science has not exhausted its resources, or skill its power of applying primary principles to the use and wants of business. Machinists acknowledge no perfection and admit of no impossibility. They believe that for every imperfection there must somewhere be a remedy. Meanwhile the mower and other excellent machines are gradually working their way into use, by demonstrating that farmers cannot afford to do without them. Every thing of this kind is first opposed and then adopted, and no doubt men are now living who ridicule the mower, and will, by and by, plough their fields by steam. It is simply a question of time. We cannot foresee where progress in invention will stop, or why it should stop at all.

Previous reports have contained full notices of the value and the best methods of raising carrots. We refer to the subject again to notice the fact of their increasing culture. As there is but one opinion of their utility, almost every farmer has a piece of land in carrots. We think they will hereafter be more extensively cultivated, in consequence of the uncertain yield of potatoes. We have noticed several instances of what appears to be a blight or rust of the tops, checking the growth of the roots. Whatever tends to facilitate their early and rapid growth will tend also to diminish their liability to this disorder. Carrots require a good soil, very deeply and finely ploughed, and furnished with well-rotted manure. The land may be laid in ridges with a plough, the centres of the ridges being two feet apart. The seed is best sown with a machine. In good land, with a favorable season, twenty tons may be grown on an acre. It may be assumed that seventy-five pounds of carrots are equal in value to eighteen pounds of good hay. This estimate will make twenty tons of carrots equal to four tons and sixteen-hundredths of hay. When we have ascertained the cost of both crops, with the expense of feeding them out, and the condition in which the land is left, we have some of the elements of a judgment respecting the comparative profitableness of carrots and grass. Not all; for besides the immediate and beef-making or milk-making results, we are to consider the effect upon the health of cattle and horses, as well as the general idea of all root crops, namely, to increase manure by means of stock, and to invigorate the land exhausted by grain. It is admitted that a mixed diet, as of roots and hay, is better for animals than a diet of any one article. Various ingredients enter into the composition of the body,—oil, fibrin, earthy phosphates, lime, &c.,—and to produce these, different articles of food are requisite. Neither starch, nor oil, nor grain alone, will increase the weight and preserve health and the capacity of labor. Fat may be laid on while the health of the animal suffers, and this process may be carried so far as to render the animal unfit for human food. For fattening purposes, for improving the quality of milk, and as alterative for horses, carrots may be regarded as occupying the first place.

Within a few years a new impulse has been given to the cultivation of cranberries, and many trials are made of upland and of artificial meadow culture. Some of these experiments are on a large scale, and promise the best results. On some natural meadows the crop has, this year, been injured by worms. One farmer, whose annual yield averages three hundred bushels, had, this season, but thirty. This was almost a solitary instance of such extremely unfavorable result. Generally the crop was good, and though selling at a less price than last year, amply repays the expense of cultivation. Some growers, fearful lest the early frosts should injure the cranberries, gather them long before they are ripe, in consequence of which they lose much of their value. But such accurate and ample information touching the cultivation of this crop is contained in former reports, and in separate contributions, that there is no necessity for extending our remarks. We doubt whether the Commonwealth has larger, finer, better managed or more profitable plantations of this valuable fruit than our own county.

There is an increasing attention paid to good gardening for domestic purposes. Farmers used to make this apology for poor gardens, that they had no time to cultivate them, because their field crops demanded all their attention. We are gratified to find that the force of this apology is not so much felt as it used to be. The example of the market gardeners has done much for us in this vicinity, by showing that a large crop may be grown on a small space by high manuring and careful tillage; and that by these means alone a profit can be made. Still, there are farmers who do not seem to appreciate either the comfort or the pecuniary advantage of a good garden. Instead of making it the earliest, they make it the latest of their spring labors. Hence they have only a late and small supply of vegetables; two or three little rows of pease, a few beans, a small patch of sweet corn, &c., whereas with a reasonable amount of labor bestowed early upon the garden, they might have an abundant supply through the summer and fall. No part of the farm pays so well as a garden, and if any part is to be neglected it must not be this. It goes far towards diminishing the butcher's bill, and tends to good health and to freedom from disorders occasioned by an almost exclusively flesh diet. A good garden is eminently economical, to say nothing of the *pleasure* of having a constant supply of fresh, tender and wholesome vegetables and fruit of one's own raising. Let the land be exposed to the sun, ploughed deep, manured well and planted early. We have noticed in many gardens that the onions did not bottom or grow large. In nearly every instance, if not in all, we found that they were planted late. Onions *must* be planted early; in our climate, from the middle to the last of April, if a large crop is expected.

Of market gardening it is not necessary to speak at length. The skill and success of Norfolk gardeners is proverbial. We visited several large market-farms in Brookline, that were perfect models of neatness, beauty and productiveness. Nothing could exceed the thoroughness and carefulness of their cultivation. Other and similar farms of great excellence are to be found in Dorchester, West Roxbury, and the towns in the vicinity of Boston.

During the past year there has been a large number of unnatural deaths among swine,—unnatural for them because not by the knife. We do not know that attention has been extensively called to this subject, but we hope in the course of another year to collect sufficient information to justify an expression of opinion upon several points: the cause of the numerous deaths, whether any one breed is specially liable to fatal disorders, or whether any profitable breed is more generally healthy than others. We have learned that in numerous instances the pigs that died were recently taken from droves out of Illinois and other western States. Many persons have ceased to eat pork, fearing that the so-called hog-cholera of the West has been introduced by the importation of swine from that region. We would respectfully suggest that farmers should carefully note any important facts that come to their knowledge, with a view to the formation of a matured and intelligent opinion respecting a class of disorders, from which serious losses have arisen this present year.

The rich and flourishing county of Norfolk did itself injustice at our late fair. The wealthy towns of Brookline, Dorchester and Roxbury, the really good farming towns of Dedham, Medfield and Medway, and a dozen half agricultural and half manufacturing places, failed to make an exhibition of their respective productions at all commensurate with their ability, with their intelligence, or their real interest in farming. The men and women were out in strong force; but the working oxen, the fat cattle, the milk-cows, the pigs and colts, the agricultural implements—objects which give life and interest to the show—were sparingly exhibited. This is much to be lamented; for, if our experience proves any thing, it is that fairs exert a moral and professional influence in proportion to the evidences they exhibit of industry, skill and progress. Many farmers appear to think that unless they exhibit some thing of the very first quality, some thing that is sure of a premium, their time and labor is lost, and are often deterred from exhibiting what they have, lest some body else should have some thing better. If this idea were fully carried out, very few would contribute. In every town are forty or fifty farmers who have fine oxen, cows or pigs, horses or colts, or specimens of good corn, potatoes or butter. They may not in all cases be the best, but if exhibited, would present the average condition or the actual condition of agriculture in the county, besides furnishing evidence of the interest felt by individual farmers. What an exhilaration would be produced by the spectacle of a hundred yoke of good working oxen, as many milch cows and heifers, and specimens of the produce of a hundred dairies. And if this intention were cherished from the beginning of the year, if the farmer instead of trusting to a few weeks' effort, just before the fair, for the sake of obtaining a premium, should bear in mind through the whole season the duty of presenting the best results of a year's work, we should have an exhibition that would gratify our pride and promote our cause. Acting upon the principle of doing one's best, the farmers would be incited to read and study, to understand and apply the laws of nature to the operations of farming; and in each department of their business to acquire the knowledge essential to success. And in this way would be amply repaid for their extra trouble, whether they received premiums or not.

Besides these immediately personal considerations, farmers who attend the fair and participate in its exercises would learn the importance of acting together, and of uniting their means and information and efforts for the furtherance of their art. Every other class of men finds its account in acting upon the principle of association. They combine their respective forces, have stated meetings, compare notes, give and receive information, adopt general modes of action, and thus form and diffuse a common spirit that contributes to the common welfare.

It would increase the benefits of the fair, if each contributor would present a written statement of the process pursued in raising his crop or stock. For some articles, such a statement is now required ; but the premium is sometimes lost for want of the statement; or else the statement is very brief and defective. Applicants do not always appreciate the importance of details; whereas these are the all-important matters. Those who are interested in agricultural affairs, want to know the precise details respecting soil, seeds, treatment, methods of feeding stock, &c. Many people believe that guano is a good article of manure. They want to know how good it is, how to compost it, in what quantity to use it, at what times, for what crops, on what soils, and in what proportions to each. So of feeding fatting cattle, how long grass-fed, how long stall-fed, on what food, how much hay and roots, mixed in what proportions, and what has been found to be generally profitable. And this with a view to answer the question, what does a pound of beef or pork cost the farmer ? Or a bushel of corn, or a gallon of milk, or pound of butter ? Written statements, made with care and based on actual knowledge, would go far towards settling definitely many vexed questions. A selection from these statements might be published in the Transactions, and the results of individual research and experiment be brought to the knowledge of the whole society.

Our farmers have the strongest inducements to develop the entire capabilities of the soil. For most of them own their farms, and hope to leave them to their children. Here is a motive to intelligent and persistent efforts to show a more thorough union of learning and practical skill, to be followed by a more abundant reward. But this result cannot be attained so long as we believe that we are born with all the knowledge necessary to a successful prosecution of our art, or so long as we neglect the study of principles and the application of them to our business. We must not only consider our art as among the most honorable, but follow it in the same spirit that leads to success in other employments.

In concluding this report, the committee would repeat the expression of satisfaction which their visits to the farmers of the county have occasioned, and the assurance that in many essential elements of good husbandry the cultivators of the soil are making a decided, and in some cases, a rapid progress. We invite the attention of young and enterprising men to the business of agriculture. We believe that persistent industry, guided by such intelligence as is within the reach of all, will be amply rewarded even in Norfolk county. The reason of our belief is found in the fact, that there are already in the county hundreds of beautiful farms, on which are living happy and prosperous families, surrounded by as many blessings, liable to as few troubles as are allotted to men in this world.

In behalf of the committee,

J. M. Merrick.

Statement of C. C. Sewall.

My farm embraces about seventy acres in the homestead, and twenty acres of pasture, orchard and meadow land abroad. When it came into my possession,—fourteen years ago,—I had to cultivate and manage it without any previous knowledge of the art, but such as observation and general reading had afforded, and without the facilities and means for fertilizing and improving it, which its former owner possessed. And here

I may, with propriety, express my obligations to the Essex Agricultural Society, by whose annual exhibitions my interest in the subject had been first excited, and by whose admirable publications my mind had been most informed respecting the best methods of farming. A feeling which, I know, is shared by many others.

The uncertainty of my continuance in an occupation so different from my life-long pursuits, and a still unabated attachment to the work of the ministry, rendered me at first less interested in the farm than was necessary for the proper management of it. I have since devoted to it more time and thought, but only to find that, without great physical ability and a proper training, no man can own and cultivate many acres, under ordinary circumstances, with economy or satisfaction. It was once a paradoxical, if not absurd, remark of an aged and highly respected farmer in this county,—a remark which he often repeated,—that a man was only the poorer for every acre of land he might own. This was said near the close of a long and active life, when sickness and infirmity rendered him unable to engage in his ordinary pursuits, and when he was obliged to depend entirely on others for ends which he could once accomplish himself. And he then felt that, unless one could labor regularly, with great power of endurance, as well as with the advantage of experience and skill, it were better, in a pecuniary point of view, that he should not own extensive lands. My own experience and observation have discovered to me the measure of truth and justice contained in his remark. Particularly is it apparent now, when public expenditures have occasioned so large an increase of taxation, and the expenses even of a humble mode of living are not easily met; where the labor to be hired is mostly of foreign immigration. A farmer, now, must not only have competent knowledge of his art, from study and observation, but fixed habits of labor, also, and sufficient physical strength to be always foremost in conducting the operations of the farm. He cannot, ordinarily, depend entirely upon the labor he may hire. Hence it is that I am more deeply impressed, every year, with the necessity of directing attention to some practicable method of raising the character of farm-laborers, and of increasing their competency and faithfulness. Unless this can be done in some way, many farms must inevitably be abandoned by their present occupants.

You will, I know, pardon this digression. Returning to the subject immediately in hand, I will now state as briefly as I can, what has been the general management of my farm.

One of my first concerns has been to increase the means of fertilizing the farm. For this purpose, I have caused nearly the whole of my pasture ground in the homestead to be ploughed, and put, in different portions, under one, two and sometimes three years cultivation. It consists of about twenty-eight acres of high, plain land. Several acres of it had been just laid down when I came here, upon which the expected crop of grass was almost entirely lost. Part of these acres were made to yield a handsome growth of white clover, by the application of plaster, at the rate of a bushel per acre. I have since used plaster and salt upon the same land,—in the proportion of one part salt, and three parts plaster,—applying the same quantity per acre, with still better results. The remainder of this lot,—about an acre,—was ploughed, manured moderately, and planted with corn for green fodder, and the crop was very large. Other portions of the pasture have been cultivated and planted with corn and potatoes, followed with spring wheat, or winter rye and grass seed. One part, where the soil is lightest, was simply ploughed, rolled and harrowed, and sown with rye and grass seed in the fall. After the seed had started, plaster and ashes were spread, at the rate of six bushels, nearly equal parts, per acre. The grain grew well, and in the spring the ground was harrowed with a light harrow, and rolled again. The result of this experiment was satisfactory. I have continued to spread ashes, or plaster and salt, or a mixture of both, on pasture ground, up to this time ; and I am satisfied that the effect fully warrants the annual outlay of expense and trouble. It should be added, that, in laying down a large portion of this land, I have not failed to sow a quantity of white clover with Rhode Island grass seed.

As the result of these operations, I am now able to keep a much larger stock of dairy cows than had been kept here before, and of course to enlarge the quantity of manure.

Next to the improvement of pasture land, I have endeavored to increase the relative quantity of English hay to be cut upon the farm. With this end in view, I have reclaimed swamp land partly by ploughing and cultivating it, and partly by smoothing the surface,—removing hummocks and bushes, ditching and draining the ground, and covering it with sandy gravel and loam. Barnyard manure, or in other cases, guano mixed with sand, was then spread and harrowed in, and grass seed sown. This has been done early in the fall of the year, and the operation has, in every case, been successful. Finding it inconvenient to cultivate distant parts of my mowing land, I caused two acres to be turned over, and rolled and harrowed. Guano at the rate of three hundred pounds per acre, and mixed with sand, was then spread and thoroughly incorporated with the soil by the harrow. Then grass seed was sown, at the rate of one peck Timothy and one bushel redtop per acre, and a light horse-harrow was afterwards passed over the ground. The result of this experiment was so successful that I have since repeated the operation several times, under like conditions, and with like good returns. And I am now convinced that it is much better for any one to follow the same, or a similar course, than to cart manure from his barn, to any considerable distance, and attempt to cultivate any land suitable for grass. I have mowed grounds which had been laid down in this way, for five or six years in succession, and obtained good crops,—giving them, however, a top-dressing of compost manure, or of ashes, once, or at most twice, in the meantime.

My method of cultivation has in general been this: to turn the sward with a large plough, to the depth of six to eight inches, according to the nature of the soil and the crop to be grown. This is followed by a heavy roller, leaving the surface flat and smooth. Corn and potatoes have usually been the first crop. The ground has been furrowed only in one direction, at the distance of three and a half feet between the furrows; and hills have been made two and a half feet apart. I have sometimes spread green manure on the sod and ploughed it in; but more frequently have spread green manure after ploughing, and harrowed it in, and then put into each hill half a shovelful of well-rotted compost. Formerly the subsoil plough was made to follow the grass plough, in the same furrow, loosening the earth to the depth of twelve to sixteen inches; and the benefit of this operation was very striking, particularly in a time of severe drought. Corn, upon ground treated in this way, was then perfectly green and vigorous, while that upon ground under the common treatment, was pale and parched. Nothing but the want of means to employ a double team, prevented the subsequent regular use of this plough in breaking up land. The use of the subsoil plough has given place to that of the Michigan or sod and subsoil plough, which requires less team, and may be, in most cases, equally serviceable. Either plough is of peculiar value when, as in my own general method of cultivation, it is intended to lay down the land the second year, without disturbing the buried sod.

I have experimented also, in the mixing of crops, and am satisfied of the great benefit resulting from the practice. I have planted corn and potatoes in this way; planting first four rows of corn, and then two rows of potatoes; thus covering the acre, and presenting a larger surface of corn to the air and light, than can be done in the usual way,—an advantage worth consideration,—and at the same time protecting the other crop from scorching suns in a dry season. I think the cultivation of mixed crops is deserving of more attention; and we have in our reports sufficient proof of its productiveness to encourage the practice.

It has been my custom to plant at least half an acre of corn for green fodder,—preferring the sweet corn, or that and common field corn mixed, rather than the southern flat sort,—planting it *very thick*, in furrows two and a half feet apart. I usually put green manure into the furrows, but have found guano and meadow mud to be equally serviceable. Besides this, I have uniformly raised a half acre of sweet corn, planting it as I do field corn. This furnishes an abundant supply for table use, or for market, and in connection with the corn fodder and following it, the best food for milch cows, or for store pigs.

I have, for many years, laid down my cultivated grounds with spring wheat and grass seed; finding the wheat to yield twenty bushels per acre, and the grass seed to take well. The ground has been usually ploughed in the spring, and compost manure or guano mixed with sand or loam, spread upon it and harrowed in thoroughly. I then sow two bushels of wheat per acre, with the usual quantity of grass seed and clover. The wheat is first soaked in a steep of ashes, or salt, or carbonate of ammonia—which last I prefer—and rolled in lime or plaster. The ground is then harrowed and rolled. When the grain has grown about two inches, unleached ashes, or ashes and plaster mixed, are sown at the rate of fifteen to twenty bushels per acre. The best sorts of wheat I have found are the Black Sea and the Java. The latter is a favorite grain in this vicinity, being less liable to smut or blast, and producing very sweet, though darker flour than the former.

I have seldom sown oats, of late years, except to be cut when green, believing that they exhaust the soil, if permitted to ripen, and are less favorable to the growth of grass seed, when sown with them. Spring rye has given place, almost entirely, to winter rye, which, on my land, is the more profitable crop. Grass seed sown with it, generally does well. A piece of ground which had been used many years for garden purposes, was sown with winter rye not long ago, without any manure. The crop of grain was very fine, and has been succeeded by two large crops of red and white clover, where no clover seed had been sown for fifteen years. I have tried barley, but only in a small quantity, and without much success. On many farms in this section, I believe it to be a very profitable crop, whether cut green for milch cows or ripened for the grain.

I have planted potatoes in different soils, with different treatment, and with various results. The soundest tubers have been uniformly grown on high land, with little manure, and that well rotted. I do not think that my crops have suffered much from the rot, still they have not been, in any way, superior to those on many farms in the vicinity. One experiment may be worth stating. A piece of ground, recently inclosed from a pasture, had been ploughed, upon part of which a bed of spent tan formerly laid. The same sort of manure was applied to the whole, and the same sort of seed planted. That portion of the land, where the tan was still present, yielded a good crop of very large and sound potatoes; while the produce of the rest was almost worthless, because of the rot. During the last two years, I have planted the Peach-blow and the Davis seedling potatoes, on light soil, and used a handful of Coe's super-phosphate of lime in each hill for manure. The crops were good and entirely free from rot. The black Chenango potato has always been free from rot on my grounds.

Of fruit, I am not able to speak with satisfaction. The apple trees upon my farm were many of them old and decayed when I came here. In attempting to graft and restore them, several were destroyed. I have set out apple, pear and peach trees, but they have not answered my expectations, and probably have not been treated rightly. I do not believe that the soil in this vicinity is peculiarly adapted to the growth of fruit trees; and I know that more attention is requisite to their successful growth, than I have been able to bestow upon them.

I have accumulated, every year, large quantities of manure from the barn cellar, the yard, and the hogsty. My custom has been to cover the bottom of each with peat mud, and to add, at different times, sods, loam, sand and litter. My cattle are yarded at night, in the summer, and housed, both day and night, in the winter. In the barn they are bedded, most of the time, upon sand, which serves to keep them free from lice, absorbs the liquid and adds materially to the contents of the cellar and the manure heap. Part of my hogs have constant access to the barn cellar, and the rest are supplied with substances which are quickly converted into useful manure. The horse-stable is directly over that part of the cellar occupied by the hogs, and all the manure from it is worked over by them.

I have kept, on the average, ten milch cows, a bull, a yoke of working oxen, four or five young cattle, and two horses. I have, for many years, raised all my neat stock,—selecting the best calves from the best progenitors. I have never experienced any difficulty in raising them, and have always found that they were quiet and orderly, and would thrive well in a locality with which they are familiar, and where they are at home.

I had almost forgotten to speak of the sugar cane, of which I raised a small quantity. The experiment was made in accordance with the directions of those who were familiar with the cultivation of the plant. The cane grew very slowly, but finally reached a height of eight or ten feet. The quantity was large for the ground which it occupied. But after a fair trial, I am satisfied that, as a green crop for fodder, it is inferior, in every respect, to the sweet corn. Of its value for molasses or sugar, I cannot speak from experience. If a sirup, like that presented at the annual exhibition, by Mr. Kinsley, of Canton, and Mr. Hyde, of Newton, can be easily and cheaply manufactured, the sugar cane will become a very common and desirable crop.

Many of the details of my farm have already been published in the "Transactions" of this society, and I will not repeat them. My crops for the last year have been less abundant and less valuable, generally, than usual. Hay and grain were much injured by storms of rain, hail and blasting winds.

I have raised, the last summer, a small crop of excellent sweet potatoes, with very little care or trouble. The ground was ploughed deeply and ridged, in rows about two and a half feet apart. Slips were planted, about 10th of June, in holes made by hand, into which super-phosphate of lime was put and thoroughly mixed with the soil. Nothing more was done on account of the wetness of the season, except pulling up weeds from the ground. The soil had been highly manured in previous years, and was too rich now for this plant. The tubers in the hills were of good size and flavor, but many more grew between the ridges and ran down a great way into the soil. This crop is worthy of our particular attention. It grows well in proper soil, and is very profitable. A light, sandy soil, with proper manure, may be easily made to yield sweet potatoes of as good quality as the market generally affords.

I have used, for two or three years past, one of Allen's mowing machines, and have invariably found it to work well when operated by a careful hand, with well-trained horses or oxen, and saving a large part of the labor and time of haymaking.

I have always raised a large supply of garden vegetables, and consider the practice one of great importance to the farmer. Carrots, turnips and pumpkins, for cattle, have also made part of my field crops. Turnips are sown among the corn, at second hoeing, and sometimes between rows of potatoes. Pumpkins are grown in the same way. Both are made a separate crop, occasionally, and this I believe to be the best mode of growing them.

In harvesting corn, I have practised both the previous cutting of the top stalk, and the cutting up the whole crop and stooking it in the field till it is dry. The top stalk retains its freshness and sweetness, if put under cover, the second or third day after cutting, and in a position to receive the air freely. But I am satisfied that the other practice is, on the whole, most useful and profitable.

MEDFIELD, November, 1857.

Statement of E. and J. Sias.

The farm which we enter for premium consists of about twenty-nine acres. We purchased it twenty-five years ago. But about seven acres had then been cultivated, including the land now occupied by our buildings and the lane leading to them, and also about an acre of swale land, mostly covered with large rocks, which we have since removed or mostly covered, leaving but about five acres in the lot fit for cultivation and that had been mowed and fed until it produced but a very small crop. The remaining twenty-two acres were swamp and pasture land, the latter being mostly covered with bushes. We came on to the place in 1837, young and inexperienced in farming, and owing for our farm $2,000. But we went to work with a will and courage that has never failed us. We had not the means to make improvements, excepting as we dug them out inch by inch from a hard and rugged soil. But after a long pull of fifteen years, we paid for our farm. Since then, our object has been more to improve it than to lay up money, and it gives us great pleasure to find that we have so far succeeded as to attract the notice of the committee of the Norfolk Agricultural Society on farms, and to induce them to visit our place the present season.

This year we had about six acres under cultivation, and about twelve in mowing, including about two of swamp. Our usual stock is five cows and two horses, which are kept on the produce of the farm exclusive of that which is sold. This year we have been very unfortunate with our cows, by injuries, reducing the quantity of our milk very much. We estimate the loss, by comparing with other years, at nearly the value of one cow, as we had but four through the winter, when we usually made about two-thirds of the yearly quantity of our milk, the injury referred to reducing the quantity this summer and fall. Our practice is to give each of our cows, at milking time, two quarts of shorts or cob-meal, through the year. Having but a small lot for pasturing, they require something more to keep them along, and we think that it pays well in the additional quantity of milk, and the better condition of the stock.

We profess to know but little of the science of farming, and consequently can practice but little; but diligence and economy we have been obliged to practice, to bring about what little we have. Most of the labor on our farm, since we commenced, has been done by ourselves, besides doing considerable for our neighbors with teams and otherwise. This is the first season that we have hired a man through the summer and fall. But our work for others has more than paid for our hired help.

For a few years we have been trying to go a little into vegetable culture, but as most of our manure has to be carted from the city seven miles, and our produce carried there to sell, it makes slow work and small profit in comparison with that which is carried on nearer the city and on a larger scale. We have not gone as largely into it as many do, or as we might, by buying more manure and hiring more help, being content to do what we can in a small, snug way, within ourselves.

Our receipts and expenditures, for the present year, are as follows.

Receipts :—	
For milk sold, ...	$277 67
milk used in two families, . . .	39 00
beef and pork, ...	258 00
Pigs sold, ...	16 00
poultry and eggs, ...	22 00
vegetables, ...	757 00
hay, ...	128 00
labor of ourselves and team, . . .	198 00
	$1,695 67

Expenses:—

For 39 loads of manure,	$144 00
grain bought,	295 00
labor hired,	114 00
shotes,	12 00
blacksmithing,	30 00
Profit to balance,	1,100 67
	$1,695 67

P. S.—The above is exclusive of grain and vegetables, &c., used in our two families.

E. & J. SIAS.

MILTON, November 10, 1857.

FARM ACCOUNTS.

HAMPSHIRE.

Statement of P. N. Richards.

In compliance with the rules of the Hampshire Agricultural Society, I present a statement of my farm accounts from April 1, 1856, to April 1, 1857, with a complete inventory of my farm property, at the beginning and at the end of the year. And, as I understand the object of the society is to ascertain the gain or loss in carrying on the place, keeping the buildings in repair, and spending most of the produce on the place, I have aimed to keep my account with that object in view.

Farm Inventory, April 1, 1856.

Buildings, and $9\frac{5}{8}$ acres of land,	$2,450 00	
Cows, horse, swine and poultry,	210 00	
Hay, grain and straw,	141 50	
Carriages, harnesses and farm tools,	75 00	
Manures of all kinds,	93 60	
		$2,970 10

CROPS.

Indian Corn.

Produce—121 bush. and 5¼ tons of stalks,	$127 08	
Expense of seed, labor, board and manure,	97 79	
		$29 29

Broomcorn.

Produce—725 lbs. brush, and 2,300 lbs. seed, ...	$66 50	
Expense of seed, labor, board and manure,	42 71	
		$23 79

Rye.

Produce—70 bushels and 56 cwt. of straw,	$89 60	
Expense of seed, board and labor, . .	32 82	
		$55 78

Potatoes and Turnips.

Produce—40 bushels, ...	$10 67	
Expense of seed, labor and manure, .	5 92	
		$4 75

Fruit.

Quinces, apples, &c., ...		$7 00

Hay.

First crop, 7 tons, $80; 2d crop, $13.33, .	$93 33	
Expense of seed, board, labor, manure, .	21 91	
		$71 42

Dwelling-house.

Rent, valued at	$45 00	
Expense of repairs, ...	21 00	
		$24 00

FARM STOCK.

Expense of keeping cattle and butter making, ...	$129 00
Milk, butter and increase, valued at .	126 62
Loss on cattle, ...	2 60
Expense of keeping horse on hay and grain,	60 00
Loss on cattle and horse, . .	$62 60

Swine.

Value of pork sold, and hogs on hand, .	$119 16	
Expense of keeping and first cost, . .	106 27	
		$12 89

Fowls.

Value of eggs and increase,	$12 80	
Expense of feeding,	6 69	
		$6 11

Manure.

Made during the year from stock, and by composting,	$80 00	
Expense of composting and tending stock,	45 00	
		$35 00

CASH.

Money received during the year,	$530 63	
Money paid out during the year,	531 56	
Error in cash account,	93	
Total profits of the year,		$271 03
From which deducting—		
Interest on investment,	$178 20	
Loss on stock, cattle and horse,	62 60	
		$240 80
Leaves		$30 23

Farm Inventory, April 1, 1857.

Buildings and land,	$2,450 00	
Cattle, horse, swine and fowls,	320 00	
Hay and grain,	88 84	
Carriages, harnesses and farm tools,	75 00	
Manure of all kinds,	98 62	
		$3,032 46

These accounts are taken from my book, in which I keep a daily record of my farming, receipts and expenditures, ever aiming to have it correct in every particular. In making estimates, I have used great care, and have been aided by the opinions of my neighbors. I have been in the habit of keeping a farm account in past years for my own benefit, and recommend it to all farmers, as a practice of great utility.

P. N. Richards.

Sunderland, April 1, 1857.

RECLAIMED SWAMPS.

ESSEX.

Report of the Committee.

Only a single entry for the premium for reclaimed meadows was made. Oliver P. Killam, of West Boxford, called the attention of the committee to about two and one-half acres of meadow land, upon which he has been making improvements during two or three years past.

The chairman notified the committee, consisting of five, to inspect the meadow on the tenth day of July, while the grass was standing; but the committee neglected their duty, with the exception of Benjamin Dawson, of Ipswich; and we, being a minority of the committee, can only say that in our judgment the improvement is such as to entitle Mr. Killam to the society's first premium. From an unproductive and partially submerged swamp, we found a fine level and dry field, with a heavy growth of Timothy and redtop. The premises were well drained, which is the first consideration in improvements of this kind, and a sufficient quantity of gravel had been spread upon the surface to afford silex to the grass and give firmness to the meadow.

In improvements of this kind, there is a double advantage gained, for while the meadow is converted from an unsightly waste to the value of at least one hundred dollars an acre, the vegetable matter removed from the ditches, in thorough draining, would add an equal value to an acre of gravelly and worn out land.

If it be the wise economy of nature to reconstruct future harvests from the decomposition of the past, what treasures of fertilizing materials lie dormant in these partially decomposed bodies of vegetable matter, of which the farmer might avail himself with great advantage.

Although the society heretofore has offered its premiums, and many valuable improvements have been made, still, considering that within the limits of the county there are twelve or fifteen thousand acres of these unproductive lands, a large portion of which is susceptible of being converted to the highest state of fertility, perhaps no field in which the society can labor offers such inducements as this, to press the subject by every means within its reach.

If two-thirds only of these comparatively worthless lands should be reclaimed and made to produce crops equal to the most fertile lands, as in some instances they have already done, thousands of dollars would be added to the value of the arable land of the county. What greater results could the society effect by any of its operations?

To bring about so desirable an end, and one which would contribute so materially to the resources of the county, it is suggested that the society offer premiums worthy of the magnitude of the subject; for the thorough draining and reclaiming of five, ten, fifteen, or twenty acres, to be approved by a committee, (who will attend to their duty,) within five years.

JOSIAH NEWHALL, *Chairman.*

Statement of Oliver P. Killam.

The whole meadow of which I have reclaimed a part, contains about five acres. In 1849, I dug an outlet to the same at an expense of five dollars, with intent to ditch, but the land being so wet I found it utterly impossible. In 1850 I cleared the bushes, which were very thick and heavy on parts of it, at an expense of fifteen dollars; it being so wet this year it was useless to attempt to ditch. In 1851, it being somewhat dry, I commenced ditching out a main ditch the whole length through the centre, four feet wide, also a shore ditch to stop the cattle, four feet wide, which worked to my satisfaction, and drained the water off so thoroughly it gave me courage to proceed. The whole expense of draining was twenty dollars.

In 1852 I topped about two acres, at an expense of forty dollars. The expense of burning the toppings on the two acres was twenty dollars. The expense of gravelling the two acres was ten dollars; spreading gravel and ashes, and seeding, four dollars. The whole expense before topping, per acre, was eight dollars. The expense of topping, fixing under-drains, burning, gravelling and seeding, per acre, on the two acres, was thirty-seven dollars, making the whole expense for reclaiming the two acres forty-five dollars per acre. Also one-half acre, that was burned without topping, the whole expense of reclaiming amounts to eleven dollars. The crop on the same has been heavy. Also one-half acre I reclaimed by under-draining and gravelling, the expense of which was twenty-six dollars, which promises well.

I have now about one acre under way that I intend to seed this fall.

West Boxford, July 23, 1857.

HAMPSHIRE.

Statement of George W. Hobart.

I enter for the premium of the Hampshire Agricultural Society three and a half acres of reclaimed swamp land, situated in Amherst. In the autumn of 1854, I commenced draining and cutting the brush and bogs on two acres of it. The land was then, and for a long time had been, a worthless quagmire, covered with water and bushes two or three feet high, and was a fit habitation for frogs and muskrats.

In the winter of 1854, I covered about half of the lot with coarse sand to the depth of three inches. In the spring of 1856, when the top began to thaw, I sowed it to oats and grass seed, harrowed and brushed them in, and had a light crop of oats. In the fall, I increased the depth of the ditch to three or four feet. I also cut another small ditch from the opposite side of the meadow, and cut and burned the brush and bogs on the remaining acre and a half.

In the spring of 1856, I ploughed, harrowed and planted to corn and potatoes one acre, and sowed the half acre to oats and grass seed. The grass came up well, the crop of oats was fair, the corn good, and the yield of potatoes was at the rate of three hundred bushels to the acre. I cut four tons of hay from the two acres seeded the year before, which I sold at ten dollars per ton. The present year, I cut about as much grass, and planted one acre with Indian corn, broomcorn and potatoes. The Indian corn produced about fifty bushels to the acre, the broomcorn was an average crop, and I dug twelve bushels of potatoes from eight rods of ground.

Expenses of reclaiming:—

Cutting and burning brush and bogs,	$20 00	
Ditching, 30 rods of hard pan,	50 00	
Digging stumps and roots,	10 00	
Carting sand,	30 00	
Ploughing and harrowing, $8; seeds, $8,	16 00	
20 loads of compost manure,	20 00	
Planting, hoeing and harvesting, $18; incidentals, $10,	28 00	
		$174 00

Value of crops:—

In 1855.	Oats and hay,	$14 00	
'56–7.	First crop of hay, 9 tons, at $7,	63 00	
	Second crop of hay, 2 tons, at $6,	12 00	
	40 bushels Indian corn, at 90 cts.,	36 00	
	1½ tons of corn fodder,	8 00	
	15 bushels of oats, at 50 cts.,	7 50	
	160 bushels of potatoes, at 50 cts.,	80 00	
			$220 50

The present value of the land is $300.

AMHERST, November 15, 1857.

FRANKLIN.

Statement of David A. and Moses Fisk.

We wish to present to you, and if worth a place in your report, to the owners of similar land, as we have often been requested to, a brief description of an experiment we have in progress, of changing an unhealthy, sunken swamp to a fertile meadow. It contains thirty or more acres, receives the wash from several hundred acres of upland, and is surrounded with large springs. A large stream of water runs from it during the wet season; across which a dam was built, making it a reservoir for a mill, and overflowing it during the fall, winter and spring, for a long time, the mud so soft and deep that a pole thirty feet long has been run down the whole length without reaching the bottom. A man could go on the most of it by stepping on the bogs, and by springing upon it could shake the ground for many rods around him. Some parts of it were so soft that no animal larger than a water-rat could cross it. A large part of it produced nothing but pond-lilies, moss, water-grass, barren cranberry vines and meadow-fern ; a part alders, hardhack and willow. The outer edge was covered with swamp ash, soft maple and white pine, and the monster stumps showed at some former period a giant growth of pines. Appearances indicate that it was once a pond of water. The soil is almost entirely vegetable matter, of a reddish brown color, or in some places black, partially decayed, and appears to have grown where it is, and thus to have accumulated to its present amount.

About fifteen years ago we commenced to reclaim this piece of worthless land ; and the first step was to lower the outlet, which we did about three feet, and finding then it was not sufficient to drain it, we dug it as much deeper, making it six feet deep, through as hard a bed of hardpan, filled with rocks, stones and boulders as a hard-working man could desire, the distance of seventy rods, and about the same distance through the centre of the swamp. It was so soft, we had to stand upon a plank to work. We have been working as we have had leisure, every year since. We have dug about two and a half miles of ditch, including the outlet; have laid about one-half mile of under-drain, using on the margin small stone, and in the centre, old rails and brush, which answer very well, and cost nothing but the labor of using; have cleared off and seeded twenty acres, and have drawn on to it about one thousand loads of dirt. We estimate the expense as follows: For lowering the outlet, $300 ; for digging ditches, $350 ; for clearing off logs, brush and stumps, $500 ; for drawing on dirt, $300 ; making $1,450 in all, estimating labor at $15 per month. It will be seen that the expense of covering with dirt has been great, owing to the fact that it was so soft that we could not work a team on it excepting when the ground was frozen or covered deep with snow, which has doubled the cost. When it is turfed over, it is hard enough to cart off the hay. We seed to Timothy and redtop. A plenty of clover comes in without sowing any seed.

We have at different times applied small quantities of stable manure, ashes, guano and super-phosphate of lime, with good success, super-phosphate being best and cheapest. The more aluminous and retentive the soil that we spread on, the better it is. For about eight years past we have planted from one to two acres of potatoes; average crop 100 bushels to the acre, without manure, of superior quality, and always free from rot. In dry seasons we have succeeded well with corn, having got 80 bushels to the acre. In wet seasons it has failed. Turnips succeed well, but grass is the surest crop, producing good crops of fair quality, in all seasons. A few of the first years we could not use any team, only a horse, by strapping rackets or pieces of board about ten inches square, on the bottom of his feet. In this way we succeeded well, but found it tiresome for a horse. Now we can work on it with a light cattle team without difficulty. This year we have got 30 tons of hay and 100 bushels potatoes, without manure. Estimate of produce since commencement: Potatoes, 1,000 bushels; turnips, 500 bushels; corn, 200 bushels; wheat, 75 bushels; oats, ten bushels; hay, 75 tons. The most of it produced within the last three or four years.

We have got to dig the outlet deeper and make more drains, and we have got about one-half as much more to clear off, which we intend to accomplish, and sometime may give the result of it.

The piece of land we offer for premium lies across nearly the centre of this swamp, and contains $3\frac{1}{4}$ acres, being 8 rods wide and 65 long. In the fall of 1851 we cut a ditch entirely around it, $3\frac{1}{4}$ feet deep, cut and burned the bogs and brush, and the following winter sledded on to it 200 loads of dirt and 25 of manure. In the spring of 1852, sowed on grass seed. We have used no manure since, except about $10 worth of super-phosphate, which we think has produced twice its value at least in hay, though the experiments were not accurate enough to detail. We have mowed it every year since, and present the following account:—

Expenses for 1851:—

Cutting ditch one-half round the piece, 73 rods,	$20 00
Cutting and burning bogs and brush,	20 00
Drawing dirt,	50 00
Grass seed,	7 00
Manure,	25 00
Super-phosphate,	10 00
	$132 00

Receipts:—

By 4½ tons of hay per year for 5 years, 22½ tons, at $8 per ton, standing,	$180 00
Deduct expenses,	132 00
Leaving a profit of,	$48 00

You will see by the above figures that this piece has paid about 40 per cent. on the amount invested, and about $12 per acre per annum. All of which we submit.

Shelburne, November 20, 1857.

E. E. Robinson's Statement.

The land to which I would invite your attention consists of one acre of reclaimed bog meadow. At the time I commenced on it, it was so soft as not to allow a team to go on it, the muck being very deep, full of logs, stumps and bogs. There grew on it a few hundred of coarse sedge grass which hardly paid for cutting. After taking out the logs and stumps and bogging it over, I drew on to it 250 loads of sand. Commenced putting it at the outer edge of it and so on, till it was covered over. I ploughed it the fall of 1854, and planted it to corn, and seeded it down to grass in 1855, and mowed it in 1856 and in 1857. The expense and profit are as follows.

Expenses:—

Digging up the stumps and logs,	$18 00
Bogging it and clearing same off,	6 00
Drawing 250 loads of sand,	25 00
Ploughing it,	6 00
10 loads manure and drawing 10 loads sand,	11 50
Harrowing it,	4 00
Planting and hoeing,	5 00
1 peck Timothy and 1 bushel redtop,	1 92
Harvesting the corn crop,	6 00
Cutting the grass and getting the hay,	7 00
	$90 42

Receipts:—

Firewood from the stumps and roots,	$10 00
60 bushels of corn, at 92 cents per bushel,	55 20
2 tons corn fodder,	10 00
2 tons hay,	25 00
2½ tons hay,	33 00
Increase in value of land,	80 00
	$213 20

SUNDERLAND, November 19, 1857.

IMPROVEMENT OF WASTE LANDS.

ESSEX.

Report of the Committee.

The question is often asked: What can be done to improve our pasture and waste land? Your committee are to some extent aware of the importance of the question, and find it not easy of solution. It may seem superfluous again to recommend plaster, as it has been recommended by former committees, and premiums have been awarded for its use. The committee, however, feel constrained again to recommend it, as it is undoubtedly the easiest and cheapest way of improving pasture land. There may be some land on which it does little or no good; but it is believed that it may be profitably used to a much greater extent than it is; and it should not be given up as useless until it is thoroughly tried.

Some pastures may be improved by sowing hay seed, and harrowing with a heavy, sharp harrow, early in spring, when the ground is soft. Ploughing, and sowing with rye and hay seed, and letting the cattle feed on the rye, sometimes has a good effect. Pasturing sheep improves the land, as their droppings are far superior to the droppings of cattle, and they will kill most kinds of small bushes, except lamb-kill, which usually grows on land too moist for pasturing sheep, as they will do much better on high land, even if it is rather dry and the feed short.

But there are many pastures, some of which are rough broken land, and others of light sandy soil, which are of little value, and cannot profitably be improved; such may as well go for wood. And it seems a subject worthy of consideration whether white pines and other light kinds of wood may not be cultivated, as the growth of light wood seems particularly adapted to light soils.

There has been no application for premium the present year on improved pasture land. The committee, however, were invited by Hiram P. Goodhue, of North Andover, to view a piece of improved waste land; and surely it was but little income, according to his statement, but not very much unlike many pastures in the county. The committee visited it on the 29th of June. The grass was nearly fit to cut. Some of the land is dry, gravelly knolls; consequently the grass was rather light,—much better, however, than it would have been had the season been dry. On the better part of the land the grass was good; and in the opinion of the committee, Mr. Goodhue has not overestimated the quantity of his crop of hay. His apple trees look well, and with continued care and attention they will, no doubt, prove a profitable investment, as trees on such land will do much better than those on land that has long been under cultivation. The committee would recommend that Mr. Goodhue receive the society's second premium of ten dollars.

July 6th, the committee had the satisfaction of viewing an improved tract of land owned by Benjamin Kimball, of Haverhill. Mr. Kimball did not ask for a premium, and declined giving a written statement, but cheerfully gave the committee a verbal statement of his course of management, which was to them quite interesting. The land is situated on an elevation or hill in the northerly part of Haverhill, near the line of Atkinson, N. H., and was formerly known as parsonage land. He had at that time a beautiful field of grass, containing about ten acres, which was nearly fit for the scythe. We say beautiful, for what is more beautiful and fragrant than a field of grass, with a large mixture of clover, when in full blossom. The committee have since been informed that the crop of hay when cut was estimated at from eighteen to twenty tons, and the second crop from ten to twelve tons. The two crops making about three tons to the acre. He commenced his operation in the autumn of 1853. He first cut the small bushes, (as it was mostly covered with them,) then ploughed it with a large team, and the next spring (1854) he planted it with potatoes. His crop was 1,060 bushels, of superior quality. He planted it again the next year, (1855,) and his crop was 1,670 bushels. He sold them at a good price, which he thinks well paid for the expense of cultivation. In 1856 it was sowed with grain and hay seed, but the grain crop was rather light. He used on the land the two years that he planted it from three to four cords of manure to the acre, which was ploughed in. He also used plaster and salt mixed together, put in the hills; salt hay he also put in the hill, as he was accustomed to do, and in 1855 he paid from fourteen to fifteen dollars per ton, and considered it a good investment. Upon being asked by the committee whether fresh meadow hay and salt would not answer the same purpose, he replied, that not being able to procure a sufficient quantity of salt hay, he, from necessity, purchased fresh meadow hay and salt, but the result was decidedly in favor of the salt hay. He also used ashes on part of the field, which had a very marked effect on the grass.

Large quantities of stones have been removed, part of which have been used to inclose the field with stone wall; others have been hauled to Haverhill village by the returning teams, while hauling manure, (a distance of nearly four miles,) and sold for a large price, which contributed largely toward paying for the manure. He has in the same field fifteen acres planted the present season, mostly with potatoes, but as to the amount of crop the committee have not been informed. He has also ploughed about ten acres to plant next season.

On another part of the same tract of land the committee were shown an experiment of the use of plaster on old pasture land, where the committee were informed that it had not been ploughed for about seventy years. It was then let out upon shares by the neighboring minister who occupied it, to one of his parishioners, and it was sowed with rye. The plaster had a wonderful effect; where it was sowed the ground was completely covered with white clover, while the adjoining land produced but little feed, and that of poor quality. Mr. Kimball is accustomed to use about one ton of plaster to the acre, which is entirely different from the common practice. Your committee, therefore, would recommend it as a subject worthy of consideration.

Mr. Kimball's experiment was highly satisfactory to the committee. He has truly made the desert or the waste uncultivated land, to bud and blossom like the rose. He has, however, been favored with a good soil that never has been cultivated, (except part of it that was once ploughed for rye,) which will produce much more with the same manure than land that has long been under cultivation. His good crop and superior quality of potatoes may be attributed, in part at least, to its being new land, or land that has not been cultivated, as such land is much better adapted to the growth of potatoes, and they will be of far better quality, and much less liable to disease than when grown upon old land. Also the use of plaster, and salt hay, would be likely to have a favorable influence on the amount, the quality, and soundness of the crop.

The committee were also pleased to see a son of Mr. Kimball at work in the field, who, they were informed, intends to be a farmer, who will, they trust, carry his father's experiments to a greater state of perfection. It is certainly pleasant in this day of feverish excitement, when so many of our young men are leaving the homes of their fathers, and going to our cities, or to the far West, to see one who is willing to engage in that important business, the cultivation of the soil.

JOSEPH HOW, *Chairman.*

Statement of Hiram P. Goodhue.

The improved waste land I offer for your inspection, containing two and a half acres, was purchased in 1847, at $20 per acre. It is somewhat rocky and is mostly covered with ravine moss and bushes. In the spring of 1852, I cleared the bushes, ploughed it and manured two acres, set it out with trees, and planted corn and potatoes, and so continued to plant it for four years, and then sowed it down to grass, sowing the seed between the corn rows, and hoeing it about the first of July. The seed did not come up well, and the next March I sowed clover, which came up well, but not in season for a crop that year. The other half acre being very rough, was not planted till this year.

The trees numbered 104, of which I have lost only one, and that by the borers. They are very plenty here and require much attention. Potash is recommended by some to kill them, but whether its constant use benefits the trees, I think is a question. I have used strong soap suds to keep the bark smooth and free from moss, until this year, when I washed them once in ley about the 20th of June. I keep the weeds and grass clear two or three feet around the roots, and the bark scraped smooth. The borers are then easily discovered during the months of August and September, and taken out with a sharp-pointed knife, without injuring the trees. At this season of the year they have not made much progress and are found near the bark. If they are allowed to make their way far into the wood, a small wire may be used to destroy them.

As to my cultivation and crops, the manure was spread every year at the rate of 15 loads to the acre, and I think I can safely estimate the corn at 50 bushels and the potatoes at 100 bushels yearly. In 1856, the crop of hay was 1½ tons of Timothy; in 1857, 3 tons of clover at first cutting, and 2,500 pounds of second crop.

North Andover, September, 10, 1857.

HAMPSHIRE.

Statement of Moses Field.

Previous to last winter, I gave some fifteen acres of exhausted pasture land a dressing of one hundred pounds of plaster to the acre. In the months of April, May and June, when I had no other business in hand, I dressed fifty more acres at the same rate. The last seems as efficient as the first dressing, the abundant rains of the season having caused it to produce immediate effect, as shown by the lively green grass of the dressed, in contrast with the dull brown of the undressed pasture. My experiment is important, not so much for its magnitude, as for the importance of its principle. The reclaiming of our mountain pasture land by barnyard manure, seems impracticable, on account of its great cost. But if it can be improved by the application of plaster, at seventy-five cents per acre, once in two or three years—quite as much as by a dressing of yard manure worth ten dollars to the acre—the owners of such pasture will try the experiment.

That part of my land, which is most improved by plaster, is a steep, rocky mountain slope, where there has been only one attempt at ploughing during the past fifty-five years. This was abortive or non-paying. It is a fact established to my own satisfaction, that plaster can be used to good profit on some pasture land, such as Mettawampee mountain land. It is equally well established that it cannot be profitably used on granite land. It now remains to be ascertained, whether my Mettawampee land can be enriched from year to year by plaster, and how much can be profitably applied to the acre. My observation indicates two or three hundred pounds.

LEVERETT, October 15, 1857.

Statement of P. N. Richards.

I had three acres of pasture in Sunderland, very light and sandy soil, which produced nothing but a stinted growth of blackberry vines. It has been reclaimed by me. In the autumn of 1853, I dressed the most sterile parts with clay, spread evenly over the surface and so left exposed to the frost of the winter, that it might slack and mix more freely with the soil. During the winter following, I drew on forty cords of muck, and left it in beds of such thickness as to allow it to be thoroughly frozen. In the spring, I drew on sixteen and one half cords of barnyard manure, forty bushels of ashes and fifty-six bushels of shell lime unslacked, and five hundred pounds of gypsum, and thoroughly mixed with the muck. I overhauled the compost when it had become sufficiently warm to generate gases and spread on more gypsum to prevent their escape. I then spread and ploughed under one-half of the compost and harrowed in the remainder.

I planted corn, putting in the hill seventy-six bushels of leached ashes, and nine bushels of oyster shell lime, well mixed. My crop was good, but was much injured by the severe drought of the summer. After harvest, I planted rye, and in the spring, while there was snow on the ground, put on nine hundred pounds of gypsum, and seeded to grass. I had a fine crop of rye, about thirty bushels to the acre. This year, I applied two bushels of plaster, mixed with twelve bushels of ashes, and had, it was said, the best crop of clover in the town. The sandiest parts produced as bountifully as any. After removing the crop of clover, I devoted the land to pasturage.

SUNDERLAND, April 6, 1857.

ORCHARDS.

MIDDLESEX SOUTH.

Statement of Willard Haven.

I have, within a few years past, set out eight hundred and twenty-five standard apple trees on my premises, all of which I raised from the seed. There are three hundred in one lot, coming under the society's rules for the present year.

The soil being light, sandy and gravelly, I took special care to prepare broad and deep holes,—about seven feet in diameter and from two, to two and a half feet in depth,—before setting. The holes were filled with the top soil, rich earth, and in some cases, a mixture of mud, but no manure.

After setting the trees, I placed a few shovelfuls of coarse, strawy manure from the yard, around each tree. A part of the land has been kept in cultivation. In the other part, care is taken to keep the soil broken for a large space around each tree.

FRAMINGHAM, Sept. 22, 1857.

Statement of H. H. Bigelow.

My orchard contains ninety apple trees, which were set out in the spring of 1854, on one and a half acres of land, and at the distance of twenty-five feet each way. The land had been used for a pasture till the year before, when I dug out the rocks—as it was very rocky—and removed them for the surrounding walls. I then ploughed the land, and in the fall dug holes for the trees, from five to six feet wide and twenty inches deep. I placed the best soil by itself, to put around the roots, and using about two bushels of compost to each tree. I took particular pains to have the roots in the same position and same depth that they were before being transplanted. My trees were two years' growth from the bud when set out. I have washed them once with potash water, not very strong, and put hay around them to keep the roots moist in dry weather. The hay I take away in the fall and put manure around instead. The first year, I planted the land with potatoes, and the two next with corn, and this year with potatoes, as you see.

MARLBOROUGH, Sept. 18, 1857.

HAMPSHIRE.

Statement of Lucius Nutting.

The young orchard in Leverett, which I enter for premium, consists of two hundred and sixteen trees, principally of the Rhode Island Greening and the Baldwin varieties, which appear to be adapted to our climate and soil for winter use. The trees were procured in the spring of 1850 from the Brookfield nursery. The lot of land upon which they stand, measures twenty-four rods by forty, and is a light, sandy loam. I set the trees, which were of two years' growth from the bud, in eight furrows, the trees at right angles with each other and thirty-three feet apart. I cultivated the land the first season and took off corn and potatoes. The depth of the furrows was about seven inches, and I put nothing about the roots, except the natural earth, well pulverized. All but three or four of the trees have lived and are flourishing.

I have kept the land under cultivation and laid down to grass in rotation, about one-half at any one time being cultivated and the other half laid down. The part cultivated has had an average spread of fifteen loads of manure to the acre. In 1852 and 1855 I gave two dressings of compost manure, consisting of pond mud, leached ashes, chip, yard manure, night soil, coal dust and iron scales, well pulverized and worked over under cover. I laid this compost in August, having first removed the earth around the roots, carefully with hoe and hook, for a space two to four feet in diameter, according to the size of the tree. I next applied to each tree a half bushel or more of the manure, spread evenly around, drew back the earth and covered the manure to keep it from drying.

This has been my practice or treatment until the present season, when I put all the land under cultivation, top-dressed it with two hundred and fifty pounds of guano to the acre, well spread, and planted with broomcorn. I think that the guano acted favorably upon the trees, as might be seen in their dark colored leaves, and in their new, large and healthy shoots from two to three feet in length.

LEVERETT, October, 1857.

HOUSATONIC.

From the Report of the Committee.

Your committee recommend that a premium be offered for fruit trees planted and properly protected along highways. An apple tree is as easily planted as a maple, and a row of good, bearing trees would afford a better protection for a fruit orchard, than the highest fence. The fence is exclusive, aristocratic,—Young America cannot abide it,—whilst the row of fruit trees along the road compromises the matter, and hence strikes the American mind as perfectly philosophical and satisfactory.

We should not neglect to notice that nothing which we have seen in all our examination has more excited our admiration, than a hedge of buckthorn, cultivated on the grounds of Mrs. David Ives, of Great Barrington. It is, as it were, a strain of harmony in two parts, executed by art and nature.

The lateness of the season, and the delay and carelessness of competitors in entering their crops, have made the committee many miles of useless travel, attended with no little embarrassment; yet we have met every where with a cordial kindness and hospitality,—roses that have hidden all the thorns,—and if we leave those, of whose labors we have been called upon to judge, as kindly disposed towards *us*, as we now feel towards *them*, we shall conclude we have discharged our duties well, and with enlarged ideas of Berkshire as regards her wealth, her enterprise and her intelligence, we gladly and gratefully lay down the badges of office and retire to the quiet of our farms.

IRA CURTIS, *Chairman.*

MANURES.

ESSEX.

Report of the Committee.

The committee regret that no statement of experiments with manures or crops to be turned in as manures, has come to their knowledge the past season. The county of Essex is peculiarly adapted and located for ploughing in vegetable matter as fertilizers of the soil, for one-half of the towns border upon the ocean, with its advantages and resources of muscle beds and sea-weeds, of kelp and salt grass, with thatch growing on the banks of the numerous creeks which frequently extend to some distance into the interior. The middle and back towns are not destitute of material for enriching the soil. They have their deposits of almost a compost heap in their peat lands and basins of roots, leaves, grass and various kinds of vegetable matter—centuries old—all near them, with the foliage of the trees and with bushes that almost cover the pastures, and which should be cut in August and ploughed in, as three cuttings will nearly destroy them and make a line for the young forest trees, that they may come thus far and no farther. Ploughing in the leaves of the apple and peach trees in November, will nearly make a supply for the crop the succeeding year. Pine and thin lands may be improved, and a double object accomplished, by sowing buckwheat early, and when sufficiently ripened, ploughing it in, thereby producing honey for bee and man, and a fertilizer for the crops of the coming year.

If the vegetable matter above specified was put into one vast heap for decomposition, and covered with the sediment of ponds and basins, that the ammonia might not escape, it would make a supply for vegetation, the value of which could hardly be overestimated. And we need it all, and more than all, for the purpose of increasing the productive capabilities of the county. And we need more tillers of the soil—more of hard working, industrious yeomen, who will bend all their energies to the work of the farm. The consumers are too numerous for the producers. Many of our farmers' sons are leaving the old homesteads, to become manufacturers or speculators, or any thing else that does not require hard work. Sturdy young men in our cities are already out of employment, and marching round with cigar in mouth, carrying banners, on which is inscribed, "bread or work." Let them come into the country—even here in New England, with her sterile soil—there is work enough here on our farms, if they will only do it. Let the sons of our farmers understand that they are to become freeholders, and let them be educated as such. Let them understand that the fluctuations of trade affect the farmer but slightly, if at all—that all that is raised will be wanted for consumption—and let them apply themselves diligently to their calling, and there is no reason why they should not be the happiest and most enviable class in the community.

M. G. J. Emery, *Chairman.*

WORCESTER WEST.

Statement of Benj. F. Hamilton.

My manner of making compost manure is as follows: My cellar is one hundred feet long, forty feet wide, and about eight feet and a half deep. I commence by laying loam to the depth of about two feet on the bottom of the cellar directly under the stable where the cattle and horses stand. When a sufficient quantity of manure has dropped from the cattle to receive another layer of loam, I apply it and continue in this manner until I turn my cattle to pasture. I then have it shoveled over and mixed together as much as possible, and let it remain until I want to apply it to the different fields as I have a year's stock on hand. The part of the cellar where I keep my hogs, I manage in the same way, except they work it over free of charge and make a large amount of the best kind of manure. I have cut double the amount of hay this season that I did seven years ago when I came on to the farm. I make yearly from three to four hundred loads of first rate manure. My barn is constructed so that I can drive directly through the whole length of the stable on the north side and drop the loam through the scuttles down in the cellar when I want to use it. I have scuttles in the centre floor where I drop the loam or muck for my hogs. In this manner it is very easy to make all the manure I want to use.

NEW BRAINTREE, September 14, 1857.

Statement of Henry Holbrook.

My manner of making compost manure is as follows: The dimensions of my barn are 100 feet long by 42 feet wide, with a cellar under the entire length and breadth. My cellar wall on the north-west side is very heavy and strong, being laid with stone and mortar. The south-east side and each end is very similar to a common house cellar. Consequently it is impossible for the manure to freeze in the coldest weather we have, which I consider very beneficial, as manure must naturally lose in value by freezing. After completing my spring work, I draw from 80 to 100 loads of loam into my barn cellar, putting about half of it under the stable where the cattle stand and the balance under the centre floor, and shovel it into the manure from time to time, through the winter months, as occasion may require, for the purpose of absorbing the liquid which drops from the stable above. A short time before drawing the manure on to the planting ground, I shovel it all over for the purpose of mixing it well together; going through that process serves to make the manure much better for whatever use it may be applied to. The above method I would recommend to every farmer who has a barn cellar. In my estimation it well pays him for his trouble and expense, to say nothing of the convenience in drawing it from the cellar, to what it would be, should it be allowed to remain under the stable. In the above way I make from 250 to 300 loads of excellent manure in a year, which I use by spreading on planting grounds, and which as yet, has never failed to secure me good crops. I have a building for my swine, the dimensions of which are 50 feet long by 24 wide, with a cellar under the whole, from which I make from 25 to 30 loads good manure per year, and from 40 to 50 loads in pens adjoining, which is excellent manure for grass land. I make from 100 to 125 loads of manure in my barnyard by drawing in loam and yarding my cattle on the same, which I use on mowing fields, which pays well for the labor, &c.

In pursuing the above practice, I am supplied with a large amount of first rate manure for my crops. I am confident that farmers are far behind the improvements of the day in this important branch of husbandry. I believe if farmers would husband their resources it would supersede the necessity of purchasing manure which costs at the rate of 60 dollars per ton.

BARRE, September 14, 1857.

HAMPSHIRE, FRANKLIN AND HAMPDEN.

Statement of George Dickinson.

I offer this statement in regard to some experiments I have made during the last season with manure, guano and ashes.

The lot of land on which these experiments were made is meadow land on the Connecticut. About one-third of the lot is a sandy soil, the remaining two-thirds is a sandy loam, resting on a sandy subsoil. The whole lot has been cultivated alike for many years. The stable manure was applied at the rate of about 340 bushes per acre, the guano at the rate of about 24 pounds per acre, and the ashes 20 bushels per acre. In order to ascertain the comparative value of these manures, and their worth to the present crop, I planted four rows without any fertilizer, (Lot No. 1;) the product of this lot was 147½ lbs. of broom-brush, and 9 bushels of seed, at 28½ lbs. per bushel.

Lot No. 2, four rows with ashes in the hill, yielded 162¾ lbs. brush and 11½ bushels seed, 28 lbs. per bushel.

Lot No. 3, four rows with guano in the hill, yielded 223½ lbs. brush and 14½ bushels seed.

Lot No. 4, four rows with stable manure ploughed in, yielded 232 lbs. brush and 15¼ bushels seed.

The yield of Lot No. 2, in excess of Lot No. 1, is 15½ lbs. brush and 2½ bushels of seed; reckoning the brush at 5 cents per lb. and the seed 1 cent per lb., leaves a balance of $1.40 as the worth of the ashes, 6½ lbs., or 21½ cents per bushel.

The yield of Lot No. 3, in excess of Lot No. 1, was 76¼ lbs. brush and 5½ bushels seed; leaving a balance of $5.18 as the worth of 81 lbs. guano, or 6 4/10 cents per lb.

The yield of Lot No 4, in excess of Lot No. 1, was 85 lbs. brush and 6¼ lbs. seed; leaving a balance of $5.81 as the worth of 3¾ loads or 113 bushels manure, or $1.55 per load of 30 bushels.

I do not claim for these experiments perfect accuracy in every particular, yet great pains were taken, and I consider the figures, stating the amount of crop from the different lots, correct.

I would here state that the brush on Lot No. 3 was not cut until a few days after the others, and being exposed to more frosts, the weight of the brush was diminished probably 5 lbs. per cwt., which would give a still more favorable account of the effects of the guano.

If the manure had been applied in the hill, it would probably have produced a heavier crop, but its permanent effects will probably counterbalance this loss. The ashes and guano, I think, have spent themselves on the present crop.

If this experiment is an approximation to the truth, it will be seen that the guano is far better worth what it costs than either stable manure or ashes.

It will be conceded by all, I think, that manure from fattening cattle costs at least $1.50 per load of 30 bushels at the barn; if so, mine cost in the ground not less than $2 per load, but the excess of the crop over the same amount of land without any stimulus makes it only $1.55 per load; the cost of the guano was $3.10 per cwt.

Statement of H. I. Hodges.

In April, 1857, I selected and staked off seven half acre lots on the Hampshire, Franklin and Hampden Agricultural Society's grounds at Northampton, on the north-easterly side of said grounds. Each lot was of precisely the same quality of soil and in the same condition, and in grass—Timothy, red and white clover; six of the seven lots I gave a top-dressing, each with a different fertilizer, leaving one lot without any. Each lot was mowed at the same time, and managed alike, and the hay upon each weighed separately, and the table at the close of this communication presents a full and accurate statement of the experiments upon these lots.

These experiments have been made with reference to knowing the true and exact effect of the several fertilizers on this lot, by top-dressing, as it is not desirable to plough or cultivate except for grass, as these grounds (fifteen acres) are kept for the use of the society, and for the purpose of holding the annual shows. The result shows quite plainly that several of the fertilizers cannot be used as a top-dressing upon these lands to any profit. The soil is a loam, with sand and clay so well mixed that good judges disagree whether to call it *sandy*-loam or *clay*-loam,—it is a cold land, and retains moisture late in the spring.

From the table, it will be discovered that ashes are the only fertilizer which produce a decidedly favorable result the first year. The increase of hay upon the lot where ashes were used pays for the fertilizer, and one hundred and nineteen per cent. over. The increase of hay on no other lot pays for the fertilizer. Guano comes near it; where guano was used the increase of hay was the greatest. Other soils would, without doubt, produce quite different results. It is hoped that every member of this society will make himself familiar with the soil and location, if he is not already, so that he may better judge of the value of this experiment to his own lands.

Number.	Kind of Fertilizers.	Quantity of Fertilizer.	Cost of Fertilizer.	Quantity of 1st crop of Hay.	Quantity of 2d crop of Hay.	Value of 1st crop of Hay, $6 per ton.	Value of 2d crop of Hay, $7 per ton.	Total value of Hay crop.	Increase of Hay from fertilizer.	Loss or Gain, 1st year, from fertilizer.
1	None, ...	none, .	none,	1335 lbs.	400 lbs.	$4 00	$1 40	$5 40	none, .	none.
2	Poudrette, . .	2 bbls.	$4 00	1413 "	400 "	4 25	1 40	5 65	83 lbs.	$3 75 loss.
3	Plaster, . . .	500 lbs.	3 00	1427 "	400 "	4 28	1 40	5 68	92 "	2 72 "
4	Super-phosphate of Lime, . .	150 "	4 00	1535 "	400 "	4 60	1 40	6 00	200 "	3 40 "
5	Horse and Cow Manure, . .	4 loads.	8 00	1855 "	400 "	5 56	1 40	6 96	520 "	6 44 "
6	Ashes, ...	10 bush.	2 00	2030 "	1000 "	6 09	3 50	9 59	1295 "	2 19 gain.
7	Guano, . . .	158 lbs.	5 24	2135 "	1000 "	6 40	3 50	9 90	1400 "	74 loss.

P. S.—These experiments are to be followed up, so as to find the results upon these lots the second year.

HAMPSHIRE.

Statement of N. Austin Smith.

I have a cistern with a capacity of about ten hogsheads ; the sides are made from water lime plastered upon the solid earth, the bottom is not cemented, the top is boarded over and covered with dirt to keep it from freezing. It is situated in a sandy loam in an out of the way place back of my barn. The drain leading to it conducts the waste water from the sink through the privy vault, the bottom of which is made of brick laid in cement with considerable inclination, which is kept by the flow of water well cleansed, and produces in the cistern a strong liquid and a powerful stimulant for growing plants. The drain above the vault is made of four inch pipe tile, and below is of brick and flat stone four inches by six ; the whole length is six rods, and the descent is seven feet. If the sink ever smells otherwise than sweet, an occasional application is made of the solution of copperas.

I have distributed the liquid by means of a forty gallon cask standing upon the back end of a one horse wagon. Into the bottom is inserted a tube, on the lower end of which is fastened another one horizontally, which is pierced with a number of small holes and made of two pieces and fastened together at the lower edge with butts, and at the upper with hooks, that it may be opened and freed from any matter which might prevent the full flow of the liquid. When the cask is being filled, which I have done by means of a large dipper, a plug is put into the outlet, having a handle reaching above the top of the cask. By this simple arrangement the contents of the cistern may be distributed in one hour. The whole cost may be reckoned as follows: The cask and fixings, two dollars; the cistern and conduit, five, and the dipper, an old pail, a stick four feet long, and ten minutes work. I have applied the liquor only to the grass in my orchard, in the spring, and soon after taking off the first crop. The result is quite satisfactory, giving the trees a healthy growth, and the grass an increase of about one-third.

Sunderland, October 19, 1857.

FRANKLIN.

Report of the Committee.

The question is constantly arising in the minds of the farmer, what will fertilize the soil so as to secure therefrom the highest possible results. We shall endeavor to meet that question according to the best of our ability. And we shall attempt to elucidate the subject by attending to three important considerations. First, that which actually enriches the soil; secondly, that which stimulates and brings into use the riches which the soil already contains; and thirdly, we shall speak of the rotation of crops.

As to the first point, we would say stable and barnyard manure is the most common fertilizer in use. Manure should be sheltered if possible. Yard manure can be greatly increased by adding those substances which will drink up the moisture and retain that which otherwise would evaporate by the heat of the sun, or run to waste by drenching rains. Such substances as cut straw, stalks, and every kind of vegetable substance. Some add muck, and this, every farmer understands, but we would speak a word as to its application.

For corn and potatoes, a very common practice has been to manure in the hill. This is upon the supposition that all the richness of the manure is imparted to the roots. But it may be a question whether a proportion of the manure, or the ammonia,—as it is sometimes called,—does not escape into the atmosphere, and is from thence imbibed into the plant through the medium of the leaves.

And another fact exists which is not taken into consideration, that is, the roots of corn are very long, ten or twelve feet, hence we can see that manure spread upon the ground and ploughed in is, on the whole, preferable to manuring in the hill.

Again, muck and clay are often used with great success upon certain soils, and hence by some they are supposed to contain important elements to sustain vegetation. But their use depends upon adaptation. Sandy soil is supposed to leach. This conveys the idea that the richness passes through into the earth and is lost through the action of drenching rains. This idea is probably false. The richness more likely escapes into the atmosphere through the heat of the sun upon the dry sand, and then whatever strength of manure is applied, rapidly passes off in the form of gases. But, be this as it may, sandy land does not retain the elements of fertility, and the question is, can any thing be applied to give the sandy soil a sufficient body (so to speak) as to retain its fertility like other soils. We answer yes. Clay applied in abundance and well worked into sandy soil will supply, in a great measure, the necessary ingredient. It tends to neutralize by the coldness of its nature the effect of the sun upon the dry sand. For the heat of the sun tends to draw all the essence of fertility which the soil may contain, into the atmosphere, and thus all soon passes off and the land is left barren. The object of clay is to neutralize the effect, and thus the soil is enabled to retain the fertilizing ingredients like other soils.

Muck will also do this, in a measure, and it contains also many ingredients of fertility. Let the farmer try this and apply clay and muck in abundance, and he will find in a few seasons his barren sandy lands brought to a high state of fertility, and a fertility that will last; and his clay and muck when thus liberally applied will be found in a few years to be of more value than the richest stable manure.

Liquid manure also is of great value to the farmer. Let vaults be prepared so as to save the urine from the stables, and fifty per cent. more would be realized, to say the least, than now is from the stable and yard. The results upon trying this manure are truly surprising. Cases have come under the knowledge of the committee, where it has been tried upon grass land, and it is not too much to say that the crop was doubled. This manure is too little thought of by farmers generally, and allowed to run to waste, and thus is entirely lost.

Super-phosphate, as a substitute for manure has been used with great success. This is composed of bone dust, sulphuric acid, Peruvian guano and sulphate of ammonia, and the effects of this in some cases are surprising. One of the committee, for experiment, tried this composition on a piece of common light sod. At an expense of six dollars per acre, results were secured which could not have been realized from twenty cart loads of good yard manure. On the next year the same experiment was tried, with the same surprising effects. Again the experiment was tried, on plain land of ordinary fertility, and the same effects were proportionally realized. But it is found upon trial that this composition cannot be used with equal success upon wet land. On the whole, we are led to feel that super-phosphate can be used by the practical farmer with great benefit.

An experiment was also tried with another article, called Poudrette, and such results were secured as led us to feel, when it is rightly applied, it can be used to good advantage. But our own experience gives the balance decidedly in favor of super-phosphate.

We come next to treat of another class of substances which are applied with much success in producing crops. We have reference to plaster of Paris, lime, &c. We class these by themselves; for it must be borne in mind that they do not contain in themselves the elments of fertility. This is particularly the case with plaster and lime, and it is a fact that the farmer would do well to bear in mind, for they seem to act upon the soil merely as a stimulus, so to speak, and bring into active operation the elements of fertility which the soil may already possess or contain. And hence we expect no further results from them than to wake the latent energies, which in some soils, seem to lay a long time dormant and useless. But the farmer who uses these merely as a substitute for manure, will, in a few years, find his farm barren and unproductive, and reduced to a low state of exhaustion, although at first he may seem to realize very desirable results. Hence we are led to say they are not to be classed among the fertilizers.

Plaster is used with good success in connection with other manures. The effect is to hasten the crop and give it a start in the spring which it does not lose for the whole summer. It also imparts color and strength which it would not otherwise possess, and this, be it remembered is not realized, without making the properties of the manure active in their effects. It is also used with good success and great benefit with any kind of manure that is only partially decomposed. The tendency is to hasten decomposition, and mature and bring into active service certain qualities of manure which would otherwise lie over till the succeeding year, and even then perhaps be of little value. On the whole, we feel that plaster judiciously applied is in most cases of good service. But its province is not to enrich.

The effect of lime, on the other hand, is somewhat different. Upon cold clay land, one bushel to the square rod, has been used to great advantage. Its tendency seems to be to warm the soil and render it loose and active after it has become cold, hard and unproductive. Upon certain farms we may safely say lime, when rightly applied, would not merely prove a safe investment, but furnish to the soil an indispensable ingredient.

Again, ashes are often applied with good results; but whether they operate otherwise than as stimulant, like plaster, is in some minds still a matter of doubt. We are led to believe that ashes, aside from their tendency to loosen the soil and stimulate the latent properties of fertility which the soil already contains, are of little service. But even this will ever make ashes a valuable article with the farmers.

Again, another department of fertilizing the soil lies in a judicious rotation of crops, and in turning tillage ground to green sward and *vice versa*. It is supposed by some that different productions require different qualities of soil, explain it in whatever way you will. Yet it is a well known fact that one field to the same crop year after year will gradually run out, and no amount of enriching will redeem it; but a judicious rotation or change of crops, such as each farmer must determine for himself, can be practiced with the most happy effects. In this lies a very important item in the science of farming. Let the farmer take all things into consideration and then ask himself each season, what will this or that field bear to the best advantage *this year?* A discerning mind will easily determine this, and he will thereby accomplish for himself and for his farm what a far more expensive treatment would not secure. Another important item is in seeding down or turning to greensward those fields which begin to be weary of the plough. A few years rest from constant tillage will produce the most surprising results, and if it were necessary an explanation could be given. Land too long exposed to the sun and to the immediate action of the atmosphere, will lose some of the most essential elements of productiveness. Hence, give it a covering of greensward for a few years and these elements are restored. But care should be taken that it lie not too long, otherwise this result is in a measure defeated by its being matted with too heavy a turf.

Such fields cry mightily for the plough, and you cannot do better than turn them back to tillage. Another important result secured by seeding down tillage is to obtain thereby a heavy bed of grass roots which, turned up by the plough, will prove of more value to the soil than a coat of manure. Thus it will be found that a wise and judicious rotation of crops will not only secure a very essential economy in the science of farming, by bringing into use all of the productive elements of the soil, but it will also be found to actually enrich the soil, and accomplish certain things and secure certain conditions of soil which manure will fail to accomplish.

In view of these statements, however imperfectly they may have been made or however imperfectly the subject may have been treated, your committee have one consolation, that their conclusions are founded not on theory, but in fact. They are the observations of practical farmers. The statements for premiums are here given. We would call particular attention to that of Mr. Smith, of Sunderland, on liquid manure, (p. 199,) and wish every farmer would profit by it. We were disposed to give him the first premium, but on looking at the rules of the society, we find he must continue his experiments another year. We, however, as an encouragement, venture to recommend a gratuity of two dollars. The statement of Mr. Cushman shows a series of experiments for two years, pursued with his characteristic energy and carefulness, and will be of much service to the farmers who study this subject. To him we award the first premium of six dollars. To Franklin H. Williams, of Sunderland, we give the second premium of four dollars.

For the committee,

CHAS. HAWKS.

Statement of Franklin H. Williams.

Last spring I entered upon an experiment with ploughing in green crop, or stalks, as manure, rather than burn the same on the ground. I have about six acres of sandy soil, which had been sown to rye so long that it was nearly worthless. About ten years ago my father came into possession of this land in a very low condition. Since that time it has been covered with muck at different times. The muck, we became satisfied, was the very thing needed to restore this poor soil to fertility. For the past three years we have been satisfied that we could return more carbon (which was the object desired) to the soil, and get a paying crop every year, by raising broomcorn and ploughing the stalks in green as soon as the brush was taken off, cheaper than to haul muck two miles, which we have to do. Below I give our method of manuring and ploughing in the stalks last year, which is our common practice. When the broomcorn is ready to cut it is cut close to the ground with corn slashers and laid between the rows. When the brush is cut and taken to the barn, we turn a furrow of about three inches deep upon each row. This so thoroughly rots the stalks before the next spring, that they are out of the way for the next crop with a valuable addition of carbon to the soil to enrich the future crop. Last winter I sledded about 40 cords of muck two miles, which was left upon this ground. The muck was drawn green from the swamp in very cold weather and put thin, allowing it to freeze hard, in which case it is much finer to compost in spring. In May, 20 loads of green manure were drawn to the field and composted with the piles of muck. When this was well warmed it was spread upon the surface and ploughed under. Last season the crop was estimated at 4,000 lbs., or two tons of brush, and I measured up 300 bushels of seed that weighed 43 lbs. to the bushel. The present season the weight of brush will be about the same as last year, but there will be little seed. We are confident we can get the six acres in less time to cut it as I have described, than to table the corn the common method. We cover four acres of the stalks in a day, which is less than half the cost of cutting the same with a stub-hoe, to say nothing of the cost of burning. Thus, you see, this poor worn out soil has been made to produce seven hundred weight of broomcorn to the acre with scarcely any thing but muck and the stalks, which latter have always been considered a nuisance upon the ground.

SUNDERLAND, November 12, 1857.

Statement of H. W. Cushman.

The use, by the farmers of this county, of artificial or foreign manure and stimulants for the soil having become quite common, I have deemed it important to continue, with great accuracy, the course of experiments I commenced last year.

By referring to the Transactions of last year it will be seen that I confined my experiments to the use of guano. This year I have continued my experiments with guano, and have also extended them to the use of plaster of Paris and ashes—particularly in the regeneration and improvement of pasture land.

1. *Guano on Grass Land.* From the centre of a mowing field of some three or four acres—old land and not very productive of grass, and which had not been manured for three or four years—I staked off a piece containing forty square rods of land. On the 16th day of May, a damp day, I sowed on this piece at the rate of 215 lbs. of Peruvian guano to the acre—$1\frac{1}{3}$ lbs. to the square rod. The result was a very visible and immediate effect on the growth of the grass—so much so, that the boundaries of the piece on which guano was sown could be seen at the distance of forty rods or more. The quantity of grass produced, so near as I could judge without weighing, was about *double* that on the adjoining land, or at least a gain of seventy-five per cent.

The advantage in using guano as above, may be thus stated: Quantity of hay on land on which guano was not used, say one ton per acre. Increase by use of guano, three-fourths ton per acre. Value of three-fourths ton of hay, less expense of cutting, say $8. Cost of guano, 215 lbs. at $65 per ton, $7; making an actual profit of one-eighth, besides the increased quality of hay on the same land.

I also measured off thirty square rods from another part of the same lot and applied at the rate of 160 lbs. of guano to the acre—or one pound to the square rod. The result was similar to the foregoing, with this difference, that the quantity of grass was proportionally less. It is my opinion that 250 lbs. of guano to the acre is the *minimum* quantity that should be applied to produce the most profit—except in raising buckwheat, which will be spoken of hereafter.

The second crop, or rowen, on the above mentioned land was but slightly increased where the guano was applied. And on examining the mowing land this year, where guano was applied last year, I found the grass to be no better than on the adjoining land; and I find with other crops, on land where guano was used last year, only a small increase—but not enough to produce much profit.

2. *Guano on Buckwheat.* By my experiments last year, I find guano to be more profitable for buckwheat than any other crop; and the same is true this year.

I have a piece of poor, sandy plain land, which was last year sown with buckwheat and 100 lbs. of guano to the acre, and it produced a very good crop. I sowed the same land, two and one-fourth acres, with buckwheat the last of June, this year, and applied to it—harrowing it in with the buckwheat—the small quantity of 50 lbs. of guano to the acre. The result was a good growth of stalks and a middling crop of buckwheat; but not as good as last year, owing to the unfavorable state of the weather. A blast, early in September, reduced the quantity of grain at least one-third.

I have thus arrived at the conclusion that on quite poor and worn-out land, the application of 50 lbs. of Peruvian guano, costing $1.62, to the acre, will produce good crops for a series of years. A larger quantity than 50 to 75 lbs. to the acre will prove injurious—making too much straw and consequently less grain.

3. *Guano on Potatoes.* In May I planted potatoes on old pasture land of moderate quality. On a part of it I manured

the potatoes in the hill with the usual quantity—some eight or nine cart loads—of good manure to the acre. On the adjoining part I applied guano in the hill, at the rate of about 200 lbs. to the acre. The result was that the land on which guano was used, *without* manure, produced as vigorous growth of tops and as many potatoes as the adjoining land, on which nine or ten cart loads of manure to the acre was used; thus demonstrating the fact that guano is as valuable for potatoes as for other crops.

WIRE FENCES.

ESSEX.

Communication of William H. Brewster.

It is an old maxim that "experience is the best schoolmaster," and it is only by practical experience that we have acquired and adopted the course of agricultural improvements for which the present age is distinguished. In those parts of our country where the material for stone fences is abundant, the reasons for constructing wire fences may not apply with all their force; but where no rocks are to be found conveniently at hand, the construction of these fences will be true economy. They consume much less labor and stock, and can be built at less than half the cost of a board fence of similar durability.

About ten years since the writer observed in one of the agricultural publications of the day an intimation respecting the utility of wire fences, and having occasion to construct a division fence at that time, concluded to make an experiment with wire. For this purpose we selected No. 9 size, and procured two hundred pounds, which cost six dollars per hundred —the price now, however, has advanced 25 per cent. Cedar posts, about six inches in diameter, were set firmly in the ground, sixty feet apart—in the intervals between these posts a cedar stake, from two to three inches in diameter, was driven into the ground, at equal distances, every twelve feet. This being completed, the wire was annealed to make it more pliable, by making a fire of brush on the premises. Being prepared we commenced running our wire, which was done by securing it to a five inch cut nail driven into the first cedar post four and a half feet from the ground, and passing to the next post, sixty feet distant, drawing the wire as tight as two men could draw it, and securing it to a nail similar to that of the first post —thus passing from post to post, to the termination of the line. This was repeated until five courses were extended.

The distance between the first and second run was eight inches—the three next courses were ten inches apart, and the last was sixteen inches from the ground—the inequalities of the surface of the ground will bring it much nearer in many places.

The attaching the wire to the stakes was effected by driving a two inch cut nail under the wire with its head inclining up, and a similar nail over the wire, about an inch from the previous one, with its head inclining down; this served to prevent the wire from swaying, and likewise to secure the stake from motion. It is preferable to secure the wire on the surface of the post, that it may receive the action of the atmosphere, and avoid corroding, which occurs when the wire is run through the post or stake by boring and plugging.

The entire expense per rod did not exceed forty cents; estimating labor at seventy-five cents per day, the wire at six cents per pound, the posts at seventeen cents each, and the stakes at two cents each, which were the several amounts paid. This fence has stood about ten years, and has required but a few slight repairs, such as the righting of a post or stake to tighten the wire. The weight of the fence is held by the posts, consequently the strain upon the stakes is slight, and when they become weak near the ground, the force of the wind meeting no obstruction by the fence, does not move them.

The cost of fencing is a very important item in farming operations, and those who have given little attention to the subject will be surprised at the following calculation made by a distinguished agriculturist in Pennsylvania, before the Philadelphia Agricultural Society, a few years since. He estimated the expense of farm fences in that State, (and gives the data upon which his calculations are based,) at $105,600,000, and the interest on this outlay, with the annual wear and tear of fences, to be equal to an annual tax of $10,000,000 on the farmers of that State.

NEWBURYPORT, October, 1857.

INDIAN CORN.

HAMPSHIRE.

Statement of P. N. Richards.

My crop of Indian corn was raised on 244 rods of heavy, sandy loam, in Sunderland. In 1856, from a half acre of it, I had a good crop of broomcorn, after having given it a good coat of barnyard manure. The remainder produced rye, without manure. On the first of May, 1857, I applied thirty one-horse loads of yard and stable manure,—ploughed it under seven inches deep, then spread on fifteen one-horse loads of compost, and at the same time sowed broadcast and harrowed in twenty bushels of ashes. On the twenty-third of May, I planted, with Billing's Corn Planter, what is called Stebbins's twelve-rowed corn. I put from six to eight kernels in the hill. The rows were three feet apart and the hills three and a half feet. I put in the hill, while planting, ashes at the rate of four bushels to the acre. I hoed three times, using each time the common cultivator, and made hills of moderate size. I thinned the stalks, between the first and second hoeing, leaving only four in a hill. I had ninety-six and one-fourth bushels of corn to the acre.

Value of crop:—		
$146\frac{1}{4}$ bushels of shelled corn, at $1, .	$146 25	
5 tons of fodder at $6, . . .	30 00	
		$176 25
Expenses:—		
Manure, $56.75, applying it, $7.27, .	$64 02	
Ploughing and harrowing, and seed, .	3 79	
Planting, hoeing and harvesting, . .	20 21	
Interest on land, valued at $200 per acre,	18 00	
		106 02
Net profit on 244 rods, ...		$70 23

To which add one-fourth of the manure unexpended,	$14 18
	$84 41

SUNDERLAND, November 15, 1857.

Statement of John M. Smith.

The crop of corn which I enter for premium grew on a clayey loam—rather heavy subsoil. The piece measures two acres and ninety rods. The manner of cultivation was as follows:—

About one acre was planted with corn last year, having been in grass three years, without manure. Ten loads of long manure were put upon it. The crop of corn was very good.

About the 20th of May, 1857, fifteen loads of manure to the acre were put upon the whole piece and ploughed seven inches deep. Between the 25th and 30th of the same month, it was planted with the "Dutton corn," putting at the same time in the hill, at the rate of six bushels of ashes to the acre. The hills were three feet four inches apart each way. It was hoed three times. The yield was $212\frac{1}{2}$ bushels. To the acre, $82\frac{9}{10}$ bushels.

Value of the crop:—		
$212\frac{1}{2}$ bushels of corn, at $1, . . .	$212 50	
4 bushels soft corn, at 25 cents, . .	1 00	
7 tons corn fodder, at $6, . . .	42 00	
One-third of the manure unexpended, .	16 00	
		$271 50

Expenses:—		
Seed, ...	$00 75	
39 loads manure, at $1.25, . . .	48 75	
Application of manure, ploughing and harrowing, ...	12 00	
Hoeing, ...	7 00	
Harvesting, ...	19 00	
Interest and taxes, ...	25 00	
		$112 50
Net profit on 2 acres 90 rods, ...		$159 00
" on 1 acre, ...		62 08

SUNDERLAND, November 15, 1857.

Statement of T. P. Huntington.

My field of corn contains a fraction over two acres. About May 1st, 1857, I ploughed in 650 pounds of guano. The ground was prepared as usual, planted, cultivated, hoed three times and the stalks were cut and stacked. I harvested one hundred and sixty-two baskets of corn, one of which, after being shelled and dried, yielded twenty quarts.

Value of crop:—		
162 baskets of 20 quarts each, equal to 101¼ bushels, at $1,	$101 25	
Corn stalks,	10 00	
Husks,	3 00	
		$114 25
Expenses:—		
Preparing ground and planting,	$28 00	
Cultivating and hoeing,	5 25	
Cutting and stacking,	3 00	
Harvesting,	10 00	
		$46 25
Net profit,		$68 00

HADLEY, November, 15, 1857.

WHEAT.

MIDDLESEX SOUTH.

Statement of Josiah Gibbs.

The land on which my crop of spring wheat grew, lies in the north-west part of Framingham. In 1856, it was well manured, and produced corn and potatoes. After the crop was taken off, there was a thin dressing of dirty manure from a yard where young cattle were yarded, ploughed in. The soil, loamy—about one-half acre of land. In May, 1857, the ground was ploughed fine, and two bushels of wheat were sown and harrowed in. The crop was harvested in August, and threshed with flails the early part of September. The bald wheat was the variety sown.

Value of crop:—	
28 bushels wheat, at $2, ...	$56 00
1½ tons straw, at $6.50, ...	9 75
	$65 75
Expenses:—	
Dirt from young cattle yard and labor in spreading, .	$10 00
Ploughing and sowing, $4; seed, $4, ...	8 00
Harvesting and threshing, ...	10 00
Interest on land, at $50 per acre, ...	4 50
Taxes on land, about	60
	$33 10
Profit, ...	$32 65

WORCESTER NORTH.

Statement of Alonzo P. Goodridge.

The acre upon which my wheat was raised is a clayey loam. The crop in 1855 was corn, with 20 loads of stable manure. In 1856, the crop was wheat, without manure. In 1857, it was ploughed twice about six inches deep, with two and one-third cords of stable manure, and twenty-five bushels of dry ashes. Two bushels of coffee wheat were sown the last week in April.

Cost of preparing the land, &c., ...	$7 00	
seed, ...	4 00	
manure, ...	15 00	
harvesting, ...	4 50	
		$30 50
Product, 22 bushels of wheat, $2, ...	$44 00	
$5 worth of straw, ...	5 00	
		49 00
Profit, ...		$18 50

Statement of Edward Smith.

The acre upon which I raised my wheat is a heavy soil, lying on a clay subsoil. The crop of 1855 was potatoes, with ten loads of compost. The crop of 1856, was corn, with twenty loads of barnyard manure. In 1857, it was ploughed twice, six inches deep. Two bushels of coffee wheat were sown May 13th, without manure. The seed was soaked in brine containing two quarts of salt, for twenty-four hours.

Cost of preparing the land,	$7 00	
seed,	5 00	
harvesting,	5 00	
		$17 00
Product, 21⅘ bushels, $2,	$44 00	
about 1 ton of straw,	7 00	
		51 00
		$34 00

HAMPSHIRE.

Statement of John Montague.

The land on which I raised my wheat lies on the bank of the Connecticut River, and measured one acre. The soil is a sandy loam. The ground produced two crops of clover, one in 1855, and one in 1856. On the 27th of August I ploughed the land, and on the first of September sowed two bushels of wheat, which had previously been soaked in strong brine for thirty-six hours. The wheat was stout on the ground, and the berry large and plump. I applied no fertilizers at all to the soil at the time, nor after sowing. Crop, 36 bushels.

Value of crop:—		
Sold for seed, 11½ bushels, at $2.25,	$26 12½	
The remainder, 24½ bushels, at $2,	49 00	
Straw, valued at	10 00	
		$85 12½

Expenses:—

Ploughing, sowing, and harrowing,	$3 00	
Seed wheat,	4 50	
Harvesting and threshing,	8 00	
Interest on land,	6 00	
		$21 50
Net profit,		$63 62½

SUNDERLAND, November 16, 1857.

Statement of John Dickinson.

I sowed, on 306 rods of land, five bushels of wheat, about the middle of April last. In 1856, I applied fifteen cart-loads of manure to the acre from my barnyard, and planted to corn and potatoes. Before sowing the wheat, I spread 600 lbs. of guano and 300 lbs. of plaster, and harrowed in. After planting, I harrowed again. The soil is yellow loam.

Value of crop:—

48 bushels by weight, at $2,	$96 00	
2 tons of straw, at $7,	14 00	
		$110 00

Expenses:—

Seed, 5 bushels, at $2.50,	$12 50	
Ploughing, harrowing, and planting,	5 00	
Guano and plaster,	22 50	
Harvesting and threshing,	11 00	
		$51 00
Net profit,		$59 00

AMHERST, November 15, 1857.

FRANKLIN.

Statement of Samuel Stoughton.

Quantity of land, one acre seventeen rods; product, thirty-five bushels. Raised corn and potatoes on the land in 1856. Condition of the land in 1857, good. Used eight bushels of ashes, ploughed and harrowed in 300 lbs. of guano, and 100 lbs. of plaster. Sowed two bushels of seed, September 20th; harrowed in and rolled. Harvested about the first of August, in good condition.

Expenses:—		
Seed,	$4 00	
Guano,	10 50	
Plaster,	50	
Labor,	11 75	
		$26 75
Value of crop:—		
35 bushels wheat, at $2,	$70 00	
Straw,	10 00	
		80 00
Profit,		$53 25

Gill, November 2, 1857.

Statement of Isaac Burrows.

Quantity of land, 280 rods; product, forty-one bushels. In 1856, the land was stubble, a crop of wheat having been raised in 1855. In 1856, applied twenty cart-loads of long manure to the acre and planted to corn. Product of corn in 1856, 83 bushels of shelled corn. Ploughed twice previous to sowing; sowed September 18, 1856; harrowed in wheat, sowed dry and clear.

Expenses:—		
Seed,	$7 00	
Ploughing, first time,	3 50	
Ploughing, second time,	2 62	
Harrowing,	1 75	
Harvesting and threshing,	13 00	
		$27 87
Value of crop:—		
Wheat,	$82 00	
Straw,	8 00	
		90 00
Profit,		$62 13

Seed was brought from Indiana.

Bernardston, October 26, 1857.

BARNSTABLE.

Statement of Daniel Scudder.

I offer for premium an experiment in the growth of Java spring wheat. The seed was brought to this country in a bag of Java coffee, and the few kernels found were planted for experiment. I obtained three pecks of Mr. Stephen Dillingham, of West Falmouth, and sowed it on 103 rods of land, a mixture of sand and loam, planted, for the two previous years, with corn and potatoes. The land had a fair coat of manure ploughed under the furrow, and the seed was sowed April 15th. The product was 18 bushels and 37 pounds of first quality of wheat.

I think this variety of wheat well adapted to our soil, and worthy of encouragement and cultivation. So far as it has been tried, it has succeeded far beyond the ordinary kinds of wheat.

RYE.

HAMPSHIRE.

Statement of P. N. Richards.

The piece of rye entered for the Hampshire Society's premium, consists of one acre of heavy, sandy loam, in Sunderland. In 1856, it was well dressed with barnyard manure, and twenty bushels of ashes applied broadcast, planted with corn, and produced eighty-one bushels.

On the 20th of October, 1856, I ploughed seven inches deep, harrowed once, and sowed five pecks of rye, which I harrowed in thoroughly.

In March, 1857, I sowed grass seed, which took well, and on the 26th of July I harvested twenty-nine bushels of rye. The heavy spring rains rendered the crop rather light.

Value of crop:—		
29 bushels, at $1, ...	$29 00	
2,500 lbs. straw, at 30 cents, . . .	7 50	
		$36 50
Expenses:—		
Seed, $1.25; ploughing and harrowing, $1,	$2 25	
Harvesting, $2; threshing, $6.90, . .	8 90	
Interest on land valued at $200, . . .	12 00	
		$23 15
Net profit, ...		$13 35

SUNDERLAND, Nov. 15, 1857.

BARLEY.

BRISTOL.

Statement of George R. Leonard.

The barley offered for premium, was raised on a poor, gravelly loam, with a clay subsoil, having a level surface of one acre. Last year the land was planted to corn, and the condition of the land had been much improved by previous cultivation. The land was in corn hills in the spring of 1856. I spread seven cords of barnyard manure, and ploughed in the same. I sowed three bushels of barley, of the four-rowed kind, on the fifth day of May, which I harrowed and rolled in; after sowing, nothing more was done until harvesting. I mowed and raked with a horse-rake, the crop from the above acre on the 19th of July, 1856; I finished threshing and winnowing on January 30th, 1857.

The above crop from the acre weighed 1,750 lbs., which at 46 lbs. for a bushel, will be 38 bushels and 2 lbs. on the acre. In making the following statements in relation to the profit of the crop, I have given no credit to the manure, (which I charged $21,) for the benefit of future crops:—

Ploughing the acre,	$2 00	
Seven cords of manure,	21 00	
Drawing on and spreading manure,	2 50	
Sowing, harrowing and rolling,	2 00	
Three bushels of barley,	3 00	
Harvesting,	3 50	
Threshing, winnowing and weighing,	4 50	
		$38 50
Credit by 38 bushels of barley,	$38 00	
Straw after threshing,	36 00	
		$75 00
Balance in favor of crop,		$35 50

NORTON, 1857.

OATS.

HAMPSHIRE.

Statement of Albert Montague.

I offer for premium a crop of oats raised on one acre of ordinary land, which was in corn the year previous, giving me a fair crop. I ploughed the land in November, 1856, and sowed my oats the 25th of April. I sowed four bushels to the acre, harvested them the 7th of August, and threshed in September, and had sixty-four bushels.

Value of crop:—		
64 bushels of oats, at 50 cents,	$32 00	
1¾ tons of straw,	14 00	
		$46 00
Expenses:—		
Seed, ploughing, sowing and harrowing,	$5 00	
Harvesting and threshing, and interest,	7 00	
		$12 00
Net profit,		$34 00

SUNDERLAND, Nov. 10, 1857.

BROOMCORN.

HAMPSHIRE, FRANKLIN AND HAMPDEN.

Statement of Henry S. Porter.

The land on which it was raised lies on the Connecticut River, and is of a dark, loamy nature, containing one acre and eight rods. In the years 1854–5 it was planted with broomcorn, with eight or ten loads of long manure. In the fall of '55 I ploughed in the broomstalks, and sowed it with wheat, but, on account of the severity of the winter, I obtained but a small crop. In the spring of '56, I sowed in ten pounds of clover seed, which grew very stout before fall. Last spring, about the 15th of May, I ploughed the crop of clover under, rolled it down and harrowed it well. I put on six loads of dirt that came from under an old barn. This was applied in the hills, which were three feet apart by two and one-half, and planted near the 20th of May. I hoed it four times, harvested it the 1st of October, and now give the result:—

1,115 lbs. broomcorn brush, at 6c. per lb.,	$66 90	
50 bush. seed, at 30c.,	15 00	
Value of crop,		$81 90
Expenses:—		
Ploughing,	$1 25	
Harrowing and rolling,	75	
Six loads manure,	6 00	
Applying same,	2 00	
Seed and planting,	1 25	
Hoeing four times,	8 00	
Harvesting and scraping,	10 00	
Interest on land,	9 00	
		$38 25
Net profits,		$43 65

HATFIELD.

HAMPSHIRE.

Statement of Elihu Smith.

The piece of broomcorn which I enter for premium contains one acre and three rods. The land had been seeded to clover one year, and was ploughed and planted on account of the clover having been wholly winter-killed.

It was cultivated the present season as follows: Six loads of stable manure were ploughed in, and the piece was planted about the 25th of May, and a fertilizer put in the hill, consisting of twenty pounds of Peruvian guano mixed with seventy-five pounds of plaster of Paris. Hoed three times. Yield of brush 900 lbs., and of seed 53½ bush., weighing 24½ lbs. per bush. The expense of cultivation and value of crop is as follows:—

Value of crop:—		
900 lbs. of brush, at 6c., ...	$54 00	
53½ bush. of seed at 25c., ...	13 32	
		$67 32
Expenses:—		
Ploughing, harrowing and planting, . .	$2 50	
Six loads of manure, at $1.25 per load, .	7 50	
Cultivating and hoeing, three times, . .	6 00	
Harvesting, scraping, and cleaning seed, .	9 00	
Interest on land, ...	6 00	
		$31 00
Net profit, ...		$36 32

SUNDERLAND, Nov. 15, 1857.

Statement of Albert Montague.

The acre of land on which my broomcorn was raised is a sandy loam. It lies in Sunderland meadow. It has been in broomcorn for three seasons, and although not so good this year as last, I consider it above the average of this year's crops. I ploughed the land about the middle of May, harrowed it enough to pulverize it well, then, with a small plough, furrowed it, spread nine loads of compost manure in the furrows, and then planted with a planter. The rows were two and two-thirds feet apart, and the hills two and one-third feet. I hoed three times, with much care the first and second times, to remove all weeds and permit only the healthy stalks of corn to grow. I left from six to ten stalks in a hill. I harvested the 7th and 8th of October, scraped it the second week in November, and had 968 lbs. of brush. My seed was light, I think about one-third of a crop. I estimate it at twelve dollars, and would not sell it for less than that.

Value of crop:—		
968 lbs. of brush at 6c.,	$58 08	
Seed,	12 00	
		$70 08
Expenses:—		
Ploughing and planting,	$3 00	
Hoeing, harvesting and scraping,	14 00	
Interest on land,	9 00	
		$26 00
Net profit,		$44 08

SUNDERLAND, Nov. 15, 1857.

CHINESE SUGAR CANE.

ESSEX.

From the Report of the Committee.

In our report of last year, we wrote with some emphasis of the great advantage that would accrue to the public, could we but raise our own molasses. This year the Chinese sugar cane has been summoned upon the stand, and interrogated of its capacities for this end, at almost every farm house in the North. On its introduction, some viewed it as a cane for the back of the credulous; others, more sanguine spirits, on a mere desire of what it should be, without waiting for the slow development of facts, proclaimed it at once as the panacea for southern short crops, or Cuban monopolies.

The results of the numerous experiments of the past season, are before the community. On these many have based their conclusions of the place it is to occupy in our agriculture. For ourselves we consider the question one of such magnitude, that, while appreciating with enthusiasm the great boon that the Chinese sugar cane or a kindred species may be to the North, from the facts developed this year, we have not been enabled to form any positive opinion on its comparative merits. How the facts before the public run one another down! One writer from twenty parts of sap, obtained but one of sirup, while his neighbor obtains the same quantity from seven parts; the sirup of one is hard medicine to take, that of the other is ranked with the best imported sirup; one finds it unpalatable to every animal on his farm, while with another it proves rich food to his neat cattle, his horse and his swine; with one it is far superior to corn stalks for sirup, with another corn stalks yield more sirup, and of a better flavor; the experiments of one satisfy him that corn stalks are preferable for fodder, while another has demonstrated to his satisfaction, the superiority of the sugar cane; and thus opposite results tread on one another's heels. We doubt not that in this series of contradictions, each experimenter states honestly his own findings. Now is it not evident that the leaven of this difference in results, is in the ignorance and clumsy experimenting of parties? All that can be fairly charged to this sugar cane, are those differences which arise from variations in soil and climate; but as these contradictory statements have been collected from a limited district, the minimum yields cannot be chargeable in any degree to the cane, but to those who experimented with it. When a new product is introduced, whose culture and management is but indifferently understood, is it not reasonable to assume at the outset, that what pure experiment will at the first detect of its resources will fall short of what those resources really are? Take for example the introduction of corn meal into Ireland, during the year of famine; we all remember how ridiculous from the stand point of our experience appeared the results arrived at, by our Irish brethren, in their earlier experiments in its use, and how much more abundant were its resources as known to us through our longer experience. "Take it away!" said an Irish lord, after making his first experiment of its value in a half-baked cake, made of meal and water without salt; "take it away, it was evidently made only for the hogs!" The experiments of the Irish people at large, proved, to their own satisfaction, that their enemies across the water were trying to poison them by wholesale; but one editor, who advanced in his experiments somewhat beyond his fellow-countrymen, discovered that corn meal *was* good for fattening swine!

In forming an opinion of the capacities of the Chinese sugar cane, may we not reasonably anticipate the maximum of the products that have thus far been obtained? All objections to its culture, which the climate and cost of growing present, are certainly legitimate, and ought to enter on the debtor side; but while passing judgment on it, let us remember not to lay to its charge results which originate in the ignorance and inexperience of the community. Let us examine a moment into the widely different results quoted above. What can be more obvious than that the quantity of sap expressed from any given number of canes, will depend on the perfection of the machinery used for this end? or that the quantity of molasses obtained from equal quantities of sirup, will depend on the different degrees of maturity to which the several lots of cane from which they were expressed have reached? At our late exhibition, four lots of molasses were presented, three of which had been burnt in the process of manufacture, and were consequently of a bitter taste, while the fourth was nearly equal in flavor to the sirup of commerce; who would say that this burnt molasses was not the product of the inexperience of the community rather than of the cane? It is so evident that the quantity of sirup obtained must depend so much on the means employed to crush the stalk, and the quality of the molasses depend so much on the skill exercised in the process of manufacture, that we feel quite safe in assuming the greatest quantity of sap obtained and the best quality of molasses thus far manufactured, as data of what this cane is equal to in the North. In the instance where the cane was unpalatable to stock, was it fed while young, or when matured, and the case so hard as almost to turn the edge of a knife? When its yield of molasses was contrasted with that of corn stalks, was the maturity of each equal, not the age? In the comparison of its value for fodder, how mature was the cane? and among other facts, was it taken into consideration that the cane sprouts readily when cut?

The results made public, disparaging to the cane, given without details, are unreliable and consequently worthless, when such elements of error may be blended with them. Certainly, before we can form any positive opinion of the comparative merits of this sugar cane, we need thorough, accurate experiments, from reliable sources. However, time must determine its merits; as with other new products so with this, amid bungling and blundering, experience will grow apace, and Yankee inquisitiveness and perseverance will in the end assign it its place in our agriculture, when the old aphorism, "what every body says must be true," will tell us what it is worth.

JAMES J. H. GREGORY, *Chairman.*

Statement of David Choate.

The land upon which I cultivated the Chinese Sugar Cane, was the last two years in corn. Before that I had raised potatoes for four years, with the exception of one year, when it was in wheat. It is loamy and has a southerly exposure. It is early land, being dry almost as soon as it is done raining. I manured my sugar cane land first with stable manure, and ploughed it in at the rate of four cords to the acre. The ground was furrowed at such distances as to admit of thirty hills to a square rod, on the 18th of May. I then put one table-spoonful of guano in each hill, and covered it with a small shovel full of well rotted, but not strong manure. On the 19th and 20th of the month, the seed was covered on about two-thirds of the land, and the planting was finished on the 25th. A cold rain storm on the 21st, delayed the planting, but there was but little difference in the height of the same after a few days. The seed started quick, and I could see no difference between the kind obtained of Mr. Flint, Secretary of our State Board of Agriculture, and that sent me from the Patent Office at Washington, either in the seed itself or in the stalk; nor can I see any difference in the crop between the two kinds.

I need not say how feeble and unpromising was the appearance of the cane stalks from the first until late in July, for that complaint, I believe, was universal. We ploughed and hoed, however, just as for corn. Early in August, the cane began to grow. Hot weather, evidently, was what it required, and till that came, no mode of culture could have availed any thing. I seriously doubt whether any early hot-house starting, of which so much is said, would have done any thing, unless continued till the late July or August heat should set in. This, indeed, I have found true in relation to hot-house tomato plants. When set in open air gardens, they appear to wait for the season, living, it is true, but hardly holding their own, till nature's time shall come round.

My first grinding of the cane was the 8th of September. The seed had then formed, but was soft. Having had no information with regard to the process of manufacturing the sirup, the cane was ground without taking off either the leaves or tops. The quantity of juice was nearly the same as afterwards, but was rather more watery, and required longer boiling. It was reduced twelve to one, but it would have been better, I think, if it had been reduced ten to one, only. When so thick, it is likely to burn. No soda or lime was added, and it was consequently slightly sour. The acidity was not removed by an alkali when it was afterwards heated, a fact showing the importance of adding the soda at the time of boiling. The 300 canes produced about seven and one-half gallons of sirup, which was boiled down to five pints of sirup, about as thick as the heaviest molasses. The boiling took ten hours. I afterwards discovered that a simmering heat requiring much less fire, evaporates the watery part quite as fast as hard boiling. I had the disadvantage, also, of a close boiler—in the house, too. Could a shallow boiler have been used, set in the air, and a current of wind be allowed to pass over it during the boiling, it would have gone, I think, much more rapidly. Skimming constantly is indispensable, as the scum, if not often taken off, appears to descend and mix again with the liquor. It is this which gives the green, corn-stalk kind of taste, so unpleasant to many people. It can be removed only mechanically, I think, as by filtering through very fine sand.

My next grinding was Sept. 29th, and was with a common cider mill, as was the first above mentioned, and, indeed, all done subsequently. The first cane ground was pressed, but not the second or the third, as it became less an object to obtain a large quantity, than to ascertain the best method of manufacturing with such appliances as farmers have within their reach generally. The juice in this case was filtered through sand, but the sand was coarse, and the same difficulty occurred as before, viz.: the vegetable particles remained sufficient to still give the corn-stalk taste, though less of it. The quantity of juice obtained appeared to be about the same as before; but as the first was pressed and this was not, no exact comparison could be made. We now boiled seven gallons to one, and when the boiling was about half done, added a large teaspoonful of soda. This sirup was fine, needing nothing but to get rid of the elements mentioned above.

The third grinding and boiling was on the 9th of October—860 canes; and I ought to state that both the cane of this grinding, and that ground on the 29th of September, had the leaves and upper part of the stalks removed; about two feet being taken off. The product, in quantity, was not sensibly altered, neither was the quality. I filtered the liquor through a finer sand than before, and consequently there were fewer impurities to rise during the boiling, but I cannot say the offensive taste had disappeared. Perhaps I make too much of this element; indeed, I admit I was not a little flattered, when exhibiting a portion of my last boiling to a few gentlemen in Boston, to be told it was better than any they had before met with; and a large grocer, who was selling New York sugar-house molasses or sirup, very heavy and rich, at fifty cents per gallon, assured me that mine would command seventy-five cents, and he was desirous to obtain all I had at that price.

For the purpose of determining the question whether the sugar cane is a paying crop, I have compared it with Indian corn in the following manner. I have 30 hills of the cane upon a square rod. Of Indian corn, on land side by side, or with a few rods of potatoes only between, I planted 25 hills upon a square rod; the manure in both cases was nearly the same, in quantity and quality, with the exception of a spoonful of guano in each hill of cane, not applied to the corn. The square rod of cane has 255 stalks. Every five stalks will make a pint of juice without pressing, equal to 51 pints of juice per rod. This, after boiling seven gallons into one, makes 142 gallons and a fraction of sirup, per acre. Let the price of the sirup be the same as was offered me by the grocer in Boston, referred to above, namely, seventy-five cents per gallon, and the result is $106.50. I consider one shilling a gallon of the sirup, as the expense of boiling; this amounts to $23.67, and reduces the value of the sirup crop to $82.83.

The corn crop has been light this year. One square rod taken as an average one, produced ten and one-half pints of shelled corn, measured the last week in October. Allowing the half pint for shrinkage, which is probably too little, the crop would be 50 bushels to the acre. But the corn was planted without guano, and it may be said that would account for the smallness of the crop. My own belief is, that when land is manured from the stable and barn cellar, as mine was, the guano would make but little difference in the crop. This is proved by the fact that the hills of cane, where guano was not applied, did not differ in appearance from the hills where it was applied. So far as the stalk itself is concerned, the advantage would be on the side of the Indian corn, probably, though of this there may be some doubt. Suppose, however, an allowance of ten dollars per acre be made in favor of the corn fodder, the cane crop will not compare badly, as the two crops would then foot up as follows, viz.: Cane, $82.83; corn, $60, if reckoned at one dollar per bushel. The comparison between the cane crop and corn crop is not quite perfect, I admit, for the reason that guano was omitted in the latter and applied in the former.

It may be best to boil the juice immediately after grinding, such being the directions given by some writers. But this is not indispensable. Of the juice ground on the 9th of October, I kept a part, say two pailfuls, over two nights and one and a half days. The mercury in the mornings of those days, stood at 50°; but the sirup was as perfect as any which I have made.

One other fact in favor of the cane crop is to be mentioned. I refer to the quantity of sirup. It is to be recollected that I did not press the cane after grinding, at all, after the first time, September 8th. At that grinding of 300 canes, the amount pressed in a common cider press was about four pailfuls. The same proportion at the other grindings, would increase the sirup about ten gallons per acre. My object has been as before intimated, not so much to see how large a quantity of juice could be produced from a given quantity of land, as to see how good an article of sirup could be made. When that is satisfactory, as it really seems to be, mills and other appliances for obtaining the sirup, will follow of course.

Essex, November 2, 1857.

MIDDLESEX.

Statement of Eben. Davis.

I planted about one-third of an acre in the same manner as Indian corn. There were about 1,200 hills, averaging about five canes to the hill. It was planted about the fifth of May, on a light, gravelly soil, too poor to produce a good crop of corn; I put from six to ten seeds in a hill, it taking a half pound of seed. The spring being cold and wet, it was three weeks before it came up; after which it grew very slowly until the first of July, at which time it was so small, that I began to despair of it; but from the first of July until the first of September, it grew rapidly, to the average height of from ten to twelve feet, and from an inch to an inch and a half in diameter. On the 24th of September I cut 100 canes; which, after stripping the leaves and cutting off the tops, weighed 200 lbs. The canes were then passed between two iron cylinders, of about eight inches in diameter, propelled by water power, from which I obtained 75 lbs. of juice. I think by a more perfect operation of the rollers, fifty or more per cent. can be obtained in juice.

The juice was then strained into a copper boiler, and the whites of three eggs, well beaten, were mixed with the juice; also a large spoonful of slacked lime, about the thickness of cream, stirred in, after which it was brought to a boiling heat, but not allowed to boil; this temperature being preserved for a few minutes, and after being skimmed clean, I commenced boiling it down rapidly, until the quantity was reduced about one-half. It was then filtered through a thick flannel, and put into an iron kettle and boiled down on the cooking-stove to about a gallon, weighing 12 lbs. The cane being too green to cut, and taking so small a quantity, I could hardly expect to produce as good an article as I could, had the cane more matured, and in a larger quantity. If the cane I have cut produces no more than that which I have made, it will produce 50 gallons, or at the rate of 150 gallons per acre.

ACTON, September 28, 1857.

HAMPSHIRE.

Statement of Cummins Fish.

I have cultivated one-quarter of an acre in sorghum saccharatum this season. The land is a mixture of gravel and yellow loam, worth $100 per acre. It was ploughed deep last year, and manured with four loads of light stable manure, and planted to potatoes. On the 17th of May, 1857, I ploughed in five loads of compost, and afterwards five loads of mixed stable manure, night soil, native guano, ashes and muck. On the 23d of the same month, I planted in hills, six seeds to each, three feet apart in one direction and two feet in the other. The plants, like Indian corn, were hoed three times. The canes, although somewhat retarded by moisture, attained an average height of eleven feet. The panicles appeared on the 10th of September.

I made an experiment in feeding cane to my cows, weighing five milkings before and after feeding, and found an increase of ten pounds weight of milk. My canes were ground, and the amount of juice produced was 288 gallons, being at the rate of 1,152 gallons to the acre. The sirup obtained from the juice amounted to 36 gallons, being at the rate of 144 gallons to the acre. I obtained no crystalized sugar, nor any ripe seeds.

Value of crop:—

36 gallons of molasses, at 75c., . . .	$27 00	
Leaves stripped from canes, . . .	1 25	
		$28 25

Expenses:—

Manure, ploughing and harrowing, . .	$12 83
Hoeing, three times, ...	3 75
Stripping leaves, ...	4 00

Use of land and taxes,	$6 50	
Drawing cane to mill,	1 50	
Manufacturing,	12 00	
Wood to boil juice,	2 00	
		$42 58
Balance against crop,		$14 33

With my present experience, I could do it again at less cost.

AMHERST, Nov. 15, 1857.

FRANKLIN.

Statement of F. H. Williams.

I planted one-fourth of an acre on soil that would produce from 30 to 60 bushels of corn to the acre. Ploughed and planted the last of May, in drills three feet apart, thinning in the drills at hoeing, to about 30 stalks to the rod. The manure was ploughed under, and the cultivation in every respect like corn. September 19th, I stripped 100 stalks of the cane clean of leaves, and run them four times through a common sugar crusher. From these I obtained six gallons of sap; this was immediately placed over the fire, in a common copper boiler, and boiled to thin sirup, when it was allowed to cool. While boiling, however, I added about a spoonful of lime, and skimmed from the surface a green matter, which rose freely to the surface; it was also strained. When cool, it was carefully poured off (some of the green matter having settled to the bottom) and placed over the fire; one egg to one-half pint of milk were added, well beaten together, to clarify it; as it boiled, was carefully skimmed.

I obtained from this, one-half gallon of thick sirup, pronounced as good as Stewart's best sirup, by good judges. I took great pains with this experiment, to see if a superior sirup could be made from the cane. October 2d, I commenced to strip the leaves from the one-fourth acre of cane, which stood from twelve to thirteen feet high. These stripped stalks were then passed twice through a common cider-mill, a one-horse load yielding one and one-half barrels of the sap, of a green color, and not agreeable to the taste. From the one-fourth of an acre I obtained seven barrels of the sap, which was taken as ground, to pans, where it was boiled to thin sirup, adding as in my first experiment, about a table-spoonful of lime, to a barrel of sap; also skimming, as the green matter rose to the surface. This was strained through a cotton strainer, while hot. After cooling, it was carefully drawn off as before, and boiled to thick sirup; eggs and milk were used to clarify. From this experiment I obtained 30 gallons of thick sirup. The quality of the last, was not as good as the first experiment, probably owing to the fact the quantity was larger. From my experiments, I think the sap will yield about seven and one-half per cent. thick sirup. The cane was in blossom or just before the milk when cut.

The specific gravity of my sirup is about 1.40. I have cut the cane for the past two years with the view of testing its value for soiling, but could not think it as good for that purpose as the Egyptian millet, or much better than corn, as I have not been able to get but one growth in a season, which is not the case with the Egyptian millet. I took some of the sirup and boiled it sufficient to grain, but instead of grained sugar, I got what I should think would make good molasses candy.

Expenses:—

Use and taxes on land, ...	$3 00	
Ploughing and planting, ...	75	
Manure, five loads, ...	4 00	
Hoeing three times and thinning, ...	1 50	
Stripping leaves from cane three days, . .	3 00	
Running cane through mill twice, and boiling seven barrels sap to sirup, nine days' work, .	8 00	
Horse and mill, four days' work, ...	2 00	
Wood used to boil sap, three-fourths of a cord,	1 50	
Drawing cane two miles to mill, ...	1 50	
Whole expense, ...		$27 25
Sirup, 30 gallons, at 75 cents, ...	$22 50	
Leaves stripped from cane, ...	1 00	
		$23 50
Balance against crop, ...		$3 75

Through the kindness of Mr. Isaac Gunn and Kelita Hubbard, the mill and apparatus cost me nothing.

SUNDERLAND, October 16, 1857.

HOUSATONIC.

From the Report of the Committee.

We now come to a most interesting department of agricultural enterprise—the culture of the Chinese sugar cane—rendered still more interesting by the very valuable report of one of the exhibitors, Samuel H. Bushnell, Esq., of Sheffield, whose skill and success, as manifested by his statement, entitle him to no ordinary measure of honor, and your committee deem his report worth more than any premium this society could bestow. It is from such reports that light must emanate, to guide us in the culture of productions newly introduced, and that require to be tested, in order to ascertain their value and the best methods of treatment and manufacture. We most gladly avail ourselves of the permission granted, of embodying his statement in our report, which is, in effect, as follows:—

"I herewith present, for your examination, three samples of molasses made from the Chinese sugar cane. No. 1 was made the 9th of September, before the seed or head appeared, and while the cane was very green. It has a strong, acid flavor, which would be corrected by the further maturing of the cane; but, as it is, renders the article worthless, [we think that is too unfavorable an expression—he should have said inferior instead of worthless.] No. 2 was made the 15th—six days later. The seed or head had now appeared. This is a better article than No. 1, though it has some of that acidity peculiar to immature fruit. No. 3, made the 22d, yesterday, seven days later still, is a very good article of molasses. The cane is still too green—only in blossom. I think the seed should be ripe, or nearly so, to make good sirup. For extracting the juice, I used a cheap, simple machine, of my own make and invention, with which two men will press out the juice as fast as three men will strip off the leaves and put it through the machine.

"From twenty-four good canes we got six quarts of juic (one-half pint from each cane,) from which we made two tumblers full, of which No. 2 is one of them. From four quarts of juice, measured, we made yesterday, the 22d, two tumblers full, of which No. 3 is one of them.

"From these samples and statements you will see, that the riper the cane the better the sirup, the sweeter the juice. From one single cane we obtained three gills, by measure, of which No. 4 is a part, as pressed from the cane. These samples are made simply by straining the juice and boiling it down.

"I have one-eighth of an acre which I intend to manufacture should it get sufficiently ripe.

"The season has been a very unfavorable one to test the practicability of its cultivation. Should it mature here, and I think it will in most seasons, I have no doubt a good article of molasses may be made from it with little expense. You will find in the hall some of my canes twelve feet five inches high. There can be no doubt that the cane is valuable for feeding stock. My crop was planted about the 27th of May."

FRANCIS WHITING.

NORFOLK.

From the Report of the Committee.

The introduction of the Chinese sugar cane is, in the minds of many, considered most valuable, either as feed for stock, or for the manufacture of sirup. Out of New England it has proved a valuable and remunerative crop, both for fodder and for the manufacture of sirup. From the little experience your committee have had on this subject, they do not believe its culture advisable in this section; at least, such was our experience the past season, which was cold and wet, and probably served to retard its growth. As a crop for fodder, it has not proved equally valuable with Indian corn, and the cattle fed with the two have invariably chosen the fresh cut corn. This we have repeatedly noticed, and are not willing to give countenance for the encouragement of its growth to the exclusion of Indian corn as a crop for green fodder.

One of your committee, who is well known for his excellent farming and careful experiments, instituted a series of trials as to crop and value, as compared with Indian corn, and the result was decidedly in favòr of Indian corn, cut green and fed out to cattle.

We have the pleasure herewith to introduce an extract from a letter to the committee from J. F. C. Hyde, Esq. Mr. Hyde was one of the first to introduce the cultivation of Chinese sugar cane in this section. He has been a strenuous advocate for its culture, and we are glad to find the opinion of your committee agrees with the experience of Mr. H., who says:—

"I will say briefly that my half acre of sugar cane yielded only ninety gallons of sirup. Did not ripen,—sirup not as good as usual,—no sugar made except some grape sugar; unripe cane will produce grape sugar; ripe cane, the cane sugar; consider it an unprofitable crop for the vicinity of a good market for vegetables. The 'begasse,' or waste, is worth about $15 per ton for manufacturing into paper. Have no doubt that sugar can be produced from ripe cane. If it should not yield sugar, the sirup is valuable. I have great confidence in it as a crop for the West. For fodder, I esteem it highly, though I confess it costs more per ton to raise than corn fodder. It is slow coming on in the spring, and it is a great deal of work to keep it free of weeds."

Eben Wight.

ROOT CROPS.

ESSEX.

Statement of Ephraim Brown.

I herewith submit a statement of the following crops which I enter for premium:—

Carrots.—The one-half acre of land on which these were raised, was broken up two years ago last spring, with a double Michigan plough, and planted with squashes, with about six cords of kelp and barn manure to the acre, spread on and harrowed in, and two shovelfuls of old barn manure in each hill. The next year it was planted with cabbages, manured with about eight cords of kelp and barn manure to the acre, spread on and ploughed in. This year I sowed it with carrots the 26th day of May. I spread on about ten cords of kelp and barn manure to the acre, and ploughed it in; the crop yielded fifteen tons and three hundred pounds; the rows were seventeen inches apart.

RUTA-BAGAS.—One-half acre of ruta-baga turnips. The land on which these were raised, was mowed the 23d day of last June, and yielded about two tons of hay to the acre. After the hay was taken off, it was manured with about eight cords of rotten kelp to the acre, spread on the grass and ploughed in with the double Michigan plough; then about three cords of fine old compost manure to the acre, spread on and harrowed in. The turnips were sowed the 15th day of July, in rows three feet apart, and the plants were left, when thinned out, standing from eight to ten inches apart in the row. The crop was taken off to-day, yielding 370 bushels of turnips as smooth as bottles; and, considering the time they were sowed, I think it is the best crop I ever raised.

The land was measured, and a strict account of the crops taken.

MARBLEHEAD, Nov. 14, 1857.

Statement of Daniel Buxton, Jr.

CARROTS.—I submit for consideration the result of my culture of carrots, on a lot of land supposed to be half an acre, but from actual measurement is a few rods less, the lot being 284 by 72 feet. The crop exceeded my expectations, being, when gathered and cleaned, more than 16 tons. The variety grown was what we call the short-horned carrots, 35 bushels weighing a ton. I consider them as good or better than any other carrots for use as feed for stock. The land on which they grew was the same on which I have grown onions for several years; it is wet, heavy and rocky. I put two cords of stable manure on the ground last fall and ploughed it in, running the plough as deep as I could with two horses, say about seven inches. In the spring I ploughed again, with a single horse, about four inches deep. The rows were fourteen inches apart. I used half a pound of seed. Considering the season, my crop is very good.

I have raised a variety of turnips this season, called Golden Ball, which I think superior to any I have before seen. The seed was received from the Patent Office.

South Danvers, Nov. 16, 1857.

WORCESTER NORTH.

Statements of John Brooks, Jr.

Potatoes.—The half acre on which I raised my potatoes is wet, with clay subsoil. The crops in 1855 and 1856 were grass, without manure. The ground was ploughed in the fall of 1856 six inches deep, and crossed in the spring eight inches deep. Two and one-fifth cords of barnyard manure were spread before the first ploughing. The land was furrowed, and 450 lbs. of plaster put in the hill. It was planted on the 9th and 10th of June, in hills three feet by two and a half, and from three to five potatoes in a hill. The variety was the Davis seedling, of which six and one-quarter bushels were used. A plough was run between the rows once, and the crop dug October 6th and 7th.

Cost of preparing the land and planting,	$5 25
seed,	3 12
manure,	10 95
cultivation and harvesting,	3 37
Product, 140 bushels of potatoes.	

English Turnips.—The eighth of an acre upon which I raised my English turnips, is a wet, stiff soil, with clay subsoil. In 1855 the crop was corn, with two loads of compost, (one-third meadow muck and two-thirds cow manure,) and 12 lbs. of guano. In 1856, the crop was English turnips, with the same manure, substituting super-phosphate of lime for the guano. In 1857, it was manured the same as in 1856, and the compost ploughed in about the middle of June, ten inches deep. On the 27th July I ploughed in the super-phosphate, and used a cultivator to level the ground. One-eighth of a pound of English turnip seed was sown broadcast, July 27th, and the crop was pulled November 2d.

Cost of preparing the land and planting,	$0 62
manure,	2 37
harvesting,	2 50

Product, 3,390 lbs. of roots.
1,660 lbs. of tops.

In lot No. 2, treated as No. 1, the product was 3,450 lbs. of roots, and 2,440 lbs. of tops.

Ruta-Bagas.—The eighth of an acre upon which I raised my ruta-bagas is a stiff soil, with clay subsoil. In 1855, the crop was carrots, with two loads of compost, (one-third meadow muck, and two-thirds cow manure.) In 1856, the crop was English turnips, with the same manure, adding 12 lbs. of guano. In 1857, used the same amount and kind of manures as in 1856. Ploughed June 6th, ten inches deep, and brushed it over. June 8th, sowed one-eighth of a pound of ruta-baga seed, with a machine, in rows about fifteen inches apart. The land was hoed twice, and the crop pulled November 2d.

Cost of preparation and planting,	$0 37
manure,	2 37
cultivation and harvesting,	2 50

Product, 5,490 lbs. of bulbs.
2,740 lbs. of tops.

In lot No. 2, treated the same as No. 1, except that 12 lbs. of super-phosphate of lime were substituted for the 12 lbs. of guano; both in 1856 and 1857, the product was 4,870 lbs. of roots, and 1,580 lbs. of tops.

Statement of Lawrin Pratt.

Onions.—The eighth of an acre upon which I raised my onions, is a light soil and subsoil. The crop in 1855 was onions, manured with four loads of compost, (two parts meadow mud, and one-third horse, cow and hog manure.) In 1856, the crop and manure were the same as in 1855. In 1857, the same amount of manure was applied, and the land was ploughed twice, three inches deep, and harrowed and brushed. On the 8th of May I planted three-fourths of a pound of silver-skin onion seed. Cultivated by hoeing between the rows and weeding, five times. The onions were harvested by raking into rows with an iron rake, from the 1st to the 15th of October.

Cost of preparing the land and planting, .	$1 37
manure, ...	4 00
cultivation and harvesting, . .	5 87

Product, 2,580 lbs. of onions.

BRISTOL.

Statement of Alson Gilmore.

RUTA-BAGAS.—The land, a quarter of an acre, on which I raised my ruta-bagas, was planted to corn last year; put on five cartloads of manure. Soil, sandy loam. In May, 1856, spread about two cords of manure, and ploughed about seven inches deep. On the 9th day of June, spread five cartloads of tussuck ashes, and harrowed and bushed the land. On the 10th, sowed the seed with a sowing machine, in rows about 18 inches apart. The crop was harvested the 3d, 6th and 8th days of November, weighing 12,015 lbs., or 200¼ bushels.

Value of 200¼ bushels, ...		$56 07
Expenses:—		
Spreading manure and ploughing, . .	$1 00	
Harrowing and bushing, ...	50	
2 cords of manure, and 5 loads of tussuck ashes, ...	13 00	
¼ lb. seed, and sowing, ...	48	
Weeding and hoeing, ...	4 00	
Harvesting, ...	2 50	
		$21 48
Net profit, ...		$34 59

EASTON.

Statement of J. B. Newcomb.

Carrots.—The land was a high, gravelly loam ; quantity, 40 rods. Produced about 100 bushels of carrots last year, manured lightly. The land was in a fine condition, as it was ploughed eight inches deep when pulling the carrots last fall. The manure was a weak compost, nearly one cord. Quantity of seed, something less than a pound. Kind, orange carrot, planted first of June with a seed sower. Weeding done by odd jobs, partly with a wheel hoe, and partly by hand. Harvested by running a Michigan plough as close to the drill as convenient, and then pulling out by hand. Produced 152 bushels of 55 pounds.

Expenses :—		
Ploughing twice and harrowing,	$1 50	
Manure, hauling and spreading,	5 00	
Hoeing and weeding,	5 00	
Harvesting,	4 00	
		$15 50

Sold a part of the carrots at 30 cents per bushel of 50 lbs., and fed out the rest.

Norton.

HAMPSHIRE.

Statement of F. H. Williams.

Potatoes.—The piece of ground, on which I raised my crop of potatoes, measures 88 rods. It was sowed in August, 1856, to wheat and clover, but the wheat was so badly winter-killed that on the 28th of April, 1857, the land was planted to potatoes. After ploughing and harrowing, furrows were turned three feet apart, and on them were dropped a small handful of ashes, plaster and salt well mixed. The furrows were then turned back to cover the whole, and the land was then rolled with a two-horse roller. By this method two men and a horse can cover three or four acres of potatoes in a day, as well as it could be done by hand, if the ground is mellow. I always salt my potatoe hills and have never been troubled with rotten potatoes. I hoed three times, mostly with the horsehoe, turned the furrows toward the hills and harvested on the 16th of September.

Value of crop:—		
118 bushels at 50 cents,		$59 00
Expenses:—		
4 bushels of seed at 50 cents,	$2 00	
8 loads of compost,	8 00	
Planting and tending,	6 00	
Harvesting,	4 00	
		$20 00
Net profit, not including interest and taxes,		$39 00

SUNDERLAND, November 15, 1857.

Statement of F. H. Williams.

CARROTS.—I raised my carrots on 45 rods of ground, which in 1856 produced oats and was seeded with Timothy. But the winter was so severe that the grass seed was destroyed. Last spring the piece was manured at the rate of twenty loads to the acre, and planted in drills, two feet apart, cultivated with the horsehoe and harvested, as follows:—We ploughed round the piece, running the plough close to the row on one side. Then the hands follow, easily pulling up the carrots, twisting off the tops and throwing them into piles on the ploughed side. In this way, with the help of one man, I have in a day dug and deposited in the cellar 110 bushels.

Value of crop:—		
134 bushels at 25 cents,	$33 50	
Tops fed to the cows,	1 50	
		$35 00
Expenses:—		
Ploughing, 50 cents, and seed, 40 cents,	$0 90	
Sowing with hand planter,	25	

Manure, $6; hoeing and thinning, $2.50, .	$8 50	
Harvesting, ...	1 50	
		$11 15
Net Profit, ...		$23 85

SUNDERLAND November 15, 1857.

FRANKLIN.

Statement of F. H. Williams.

TURNIPS —Quantity of land, 56 rods; product, 253 bushels. Raised on the land in 1856, oats. Condition of the land in 1857, reduced. Used eight loads of compost made after the yards were cleared at planting. A crop of hay was taken from the ground July 9; July 11th, it was ploughed seven inches deep and harrowed. July 11th, manured and sowed in drills two and one-half feet apart. Cultivated by ploughing with horse between the rows. I manure in drill, and like it much. Cut the tops before pulling, then pull and put in baskets. One hand can pull a hundred bushels per day.

253 bushels turnips, at 20 cts., . . .	$50 60
Compost and all other expenses of raising crop,	10 50
Net profit, ...	$40 10

SUNDERLAND, November 12, 1857.

FARM IMPLEMENTS.

ESSEX.

From the Report of the Committee.

Early in the season, notice was given to your committee by the secretary, that Horace Ware, of Marblehead, and Samuel A. Merrill, of Salem, would compete for the premium offered by Mr. Fay, for the best work done by a mowing machine, on not less than fifty acres.

Mr. Ware proposed to use Manny's machine, the same that he has operated for two years past, with horses weighing about eleven hundred pounds each.

Mr. Merrill proposed to use Allen's machine, with horses weighing about a thousand pounds each.

A day was appointed, and a favorable field selected on the Derby farm, near the head of the harbor, in Salem. Many people gathered to witness the contest between two so energetic and experienced workmen. Farmers came miles to learn what kind of things these mowing machines are—some doubting whether they could be worked at all by horse power. Two half acres of grass, estimated to contain one and a half tons to the acre, were measured off as near alike as possible, and the competitors started at the same time. Unfortunately, on going around the second time, Mr. Ware's machine struck a fast rock, which broke off one of the points and disabled it for the day. Mr. Merrill continued on, in a manner highly satisfactory to all present, until he completed the cutting of his half acre in nineteen minutes. This work was witnessed by the committee. A few days subsequent, the committee were invited by Mr. Ware, to witness the cutting of half an acre of grass on land of Mr. Rowe. This was satisfactorily done in twenty minutes, containing at the rate of two tons to the acre. Subsequently, the committee witnessed the cutting of an entire acre by Mr. Merrill, in thirty-five and a half minutes, yielding two and a half tons. This was the most expeditious cutting seen by the committee. There was no perceptible difference in the quality of the work done by the two machines; and judging from what we saw in the field, we do not feel justified in giving either of the machines a preference over the other. We liked the operation of both, and were astonished that grass could be cut by their use, at less than half the expense we have ever before known it to be done by the scythe, under circumstances most favorable.

Upon examining the returns made by Mr. Ware, we find that he has cut the present season more than one hundred acres of grass, yielding two tons to the acre—no time varying essentially from fifty minutes to the acre; and in the course of three years, with the same machine, more than three hundred acres, at an expense for repairs not exceeding $5 per year.

Mr. Merrill's return for the present season, shows a cutting of more than one hundred acres, on an average of time of fifty-two minutes to the acre, and grass as heavy as Mr. Ware's. Committee are entirely satisfied that either of these gentlemen will cut an acre an hour, containing two tons or more, for five hours together, where the land is even.

The committee regretted that they were not called on to witness the cutting of grass, by other well reputed machines, particularly the Heath mower, for which a bounty of one thousand dollars was awarded the last year. They are glad to learn that the mistakes made by mechanics in reconstructing these machines, with supposed improvements, are not likely essentially to mar their usefulness; and that the probability is, the Heath machine, the coming season, will be before the public in fair competition with the best implements of the kind in use in this vicinity. It is thought by some of your committee who have seen it operate, to possess some advantages over any other implement they have seen.

The committee, anxious to avail themselves of the best information to be had on the use of mowing machines, attended the grand exhibition of these implements, under the supervision of the National Agricultural Society, at Syracuse, N. Y. But they returned with no better information than could be obtained at home. In view of all they have seen and learned in relation to the use of mowing machines,—in view of the purpose of the generous donor in establishing this bounty of two hundred dollars,—all of which has heretofore been awarded, excepting the sum of fifty dollars,—and in view of the well conducted and persevering efforts of Messrs. Merrill and Ware the present season,—they recommend that this sum be awarded, in equal parts, to these gentlemen.

Letter of Richard S. Rogers to the Committee.

"Oak Hill, South Danvers, Nov. 14, 1857.

"In reply to inquiries respecting 'the comparative worth of Ketchum's, Manny's, and Allen's mowing machines,' I can only speak, from my own personal observation, of the first and last implements, never having seen Manny's used under circumstances that would enable me to form a correct estimate of its merits. Ketchum's I have given a fair trial, having used it for the last three years; after making an important alteration in the fingers, substituting wrought for cast iron, I found it an excellent machine, with two exceptions: that of being very heavy, unnecessarily so, fatiguing and worrying the horses much in draft; and that of clogging often and badly, in thick or wet grass. To free it of this last fault, requires a backward motion of the machine to clear it of the grass, which is very awkward for the driver and hard for the horses. This difficulty does not occur in working Allen's machine, which gives it a superiority over Ketchum's. When in proper order, it cuts smoother, cleaner and closer than Allen's, more particularly in second crop.

"In consequence of breaking an important piece of machinery in Ketchum's, and finding I should be delayed in cutting my first crop if I attempted to repair it, I was induced to purchase Allen's machine, and with it finished cutting my grass. This gave me a fair opportunity of testing its ability for work, and I must acknowledge it gave very general satisfaction; so I did not grudge the money it cost, as I found it lighter, and very much easier for the horses in draft, than Ketchum's, and it will accomplish much more work than the latter, in the same time; and I therefore give it decidedly the preference over the latter, at the same cost.

"Allen's, however, admits of some improvements. It does not cut the grass as close as it should, on the score of economy, and leaves too much uncut. This is a serious fault, in my opinion, and should be remedied; the knives should be lower and nearer to the sod, and made to rise and fall as necessity requires.

"With a suggestion and hint to the manufacturer, I shall close. Nearly all the implements now made for farming purposes, I think, are made somewhat like 'Peter Pindar's razors,'—to sell. To the farmer who has no money to throw away on useless inventions, it is a serious matter for him to purchase a mower, and at the moment when most needed have it fail him; for it is well known he must 'make hay while the sun shines,' for but a few days in July can be depended on with certainty. Therefore, the manufacturers of all implements should look well to the material they use, and see that none but good, sound and efficient iron is worked, for if inferior is used, with poor workmanship, the genius of the inventor is trifled with, and the farmer suffers a severe loss and disappointment."

J. W. PROCTOR, *Chairman.*

NORFOLK.

From the Report of the Committee.

The Committee on Agricultural Implements found but a small assortment offered for examination. It contained, however, some of the most useful and valuable sort, deserving more exact description than can be given in this report. We would particularly recommend them to farmers as worthy of their notice.

First. A sugar mill, manufactured and exhibited by Lyman Kinsley, of Canton, for the purpose of expressing the juice from the sugar cane. It was operated by hand-power with ease, and performed its work thoroughly and expeditiously. Similar mills, of large size, are manufactured by Mr. K., to be operated by horse or steam-power. We have seen nothing of the kind more simple in construction or effective in operation. And if the sugar cane should continue to be grown for the purpose of making molasses or sugar, this mill will be found a cheap and valuable aid in accomplishing the work.

Second. A plough, exhibited by S. Hurlbut, of Boston. This plough has an iron beam, and its mouldboard is uniformly convex, from front to rear and from top to bottom. There appears to be an advantage in its peculiar form, and it is said to be of easy draught, and adapted for use in all kinds of work. It was tried on the ground at the ploughing-match, and commanded one of the society's premiums for its work, though operated under most unfavorable circumstances.*

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* This plough has been tried since the date of this report, on the farm of one of the committee. It was used in breaking up an acre of sward land, which had been in pasture for many years. Good judges, who witnessed the operation, were of the opinion that it performed the work exceedingly well, and needed only the addition of a wheel to make it one of the best ploughs in use in this section of the country. The team used was a single yoke of oxen, without a driver, after turning the first two or three furrows, with the addition of horse to the motive power. We understand it is now to be had with a wheel, and also a wooden beam, which, in many cases, would be preferred.

Third. Several ploughs, with cast iron beams, of different sizes—Rich's patent—exhibited by Mr. C. A. Haek, of Stoughton. These ploughs are all of good form and well finished, and are, we understand, in common use in other counties, giving entire satisfaction. Among them was a side-hill plough, which we think must be particularly useful on many farms.

Fourth. A granulating mill, for reducing corn, shelled or in the cob,—wheat, and other small grains,—coffee, spices, &c., to uniform particles of any required size ; manufactured and exhibited by E. Richmond, of Boston. This mill may be operated either by hand or other power, for fine or coarse work ; and from specimens shown of its production, as well as its operation before us, seems be admirably adapted to its different purposes. It cuts whatever substance is presented into minute and uniform particles, instead of crushing or bruising it. When operated by hand, it will so reduce oats, or any similar grain, at the rate of six bushels per hour, and corn at the rate of three bushels per hour.*

For the committee,

C. C. SEWALL.

MEDFIELD, September 27, 1857.

HAMPSHIRE.

Report of the Committee.

The number of entries was thirty-four. The first premium for the best collection and greatest variety of farm implements was awarded to Hunt & Co., of Amherst. The premium for the largest collection and greatest variety of old fashioned farming tools was divided between L. D. Cowles, of Amherst, who exhibited a lot of ploughs, the date of whose construction must have been away back in the time when the hills were young; and J. E. Albee, for an ancient fork, and Edward Morse for a like utensil. The examination of these antiquated farm implements, was, by contrast, the most pleasing part of the duty of your committee. A great change has been made by the present generation in this department. The thought here occurs—have all these changes been improvements? The sturdy men of a past generation, who wielded these and similar tools, were, in their day, many of them, mighty men of renown and successful farmers. They were intelligent, enterprising, far-seeing men, who secured a competence, educated their children, were useful to the State, and spent long lives in the enjoyment of health and happiness. Then, the mechanic arts and agriculture had little affinity. And yet those who were devoted to tillage, were, as men, parents, patriots and Christians, models for the world. Where, then, the need or utility of these modern improvements? Are they not, after all, in their influence on farmers, a step backward? In every thing essential, are we any better than they, and would it not now be an improvement to imitate both their noble virtues and implements?

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* From personal trial of this machine since the date of the Report, we are disposed to recommend it as of much value for domestic purposes, and where a common mill cannot be conveniently or immediately reached. Nothing could be more useful in neighborhoods where a large establishment is not at hand, and at times when the grinding is low, or wholly stopped for want of water. It may be had of large size, fitted for operation by horse or other power, and would be a cheap and useful machine, in many places, for the supply of farmers owning it in common. We presume the chief use of the machine exhibited at the show, is for domestic purposes.

We answer, that an advancing civilization and increased population, have changed the condition, structure and wants of society. Then, land and labor were cheap, and the demand for agricultural products beyond home consumption, limited. To engage in farming pursuits now, requires an investment in real estate three times as large as it did sixty years ago, and to make it pay, the return must be in proportion. The price of labor has doubled, and the necessary workmen of intelligence cannot be found. How, then, shall these broad acres be cultivated? How shall the farmer secure the due return from his capital? How supply food for the increasing millions? Plainly, some other power than human muscles must be employed in tilling the soil, and mechanical skill must become the handmaid of agriculture. This idea is now uppermost in the minds of many of our farmers and mechanics. They are bound to accomplish wonders, and, although often rebuffed by failure, they will eventually succeed. The movement, it must be acknowledged, contains some humbug, which should admonish us to be cautious, while interest requires that we do not stand aloof from real advancement.

The seed sower, corn planter, mowing machine, and horse-rake, have triumphed over prejudice, and are now fixed facts and indispensable to every one who aspires to be a farmer. The mowing machine in particular, is, at the present time, attracting universal attention, and, in the opinion of your committee, deservedly so. For what the cotton-gin has done for the southern planter, the mower is to do for the northern farmer. The machines have been brought to such a state of perfection, do their work so well, and with such dispatch, that no farmer can afford to cut his grass with a scythe. It is no objection that the machine requires smooth fields to operate on, for no farmer should have any other than such fields for mowing. It does not come within the province of your committee, to speak of the merits or demerits of rival machines. All that have been on exhibition are a decided improvement on hand mowing. Let any farmer purchase the one which, in his opinion, is the best, and he will be satisfied of the fact.

Our grass is cut and spread by machinery. We want, and must have a machine for turning and tending the hay. The English have one in successful operation, and the Yankee, who will put it in motion, here, may be sure of a rich reward. Model loading machines are on exhibition, and we trust the thing itself will soon be perfected and brought into use.

Although machines plant our corn, and the horse-hoe assists in its cultivation, we need assistance in its harvest. To supply this want, a husking machine has been invented, but has not been exhibited in this vicinity. We trust that it will soon make its appearance, accompanied by the patent potatoe digger and sorter, and prove worthy of, and receive the patronage of our farmers. The benefits already conferred on agriculture by the mechanic arts are great, but much more remains to be done. We need have no fear that they will abrogate the curse of the fall, (turned by Providence into a blessing,) that labor will cease to be necessary, and that idleness, "the mother of vice," will prevail. For, with the steam-plough passing over our fields and and inverting the sod, "like a thing of life," with our grain harvested and threshed by horse-power, with our hay cut, tended, loaded and unloaded by mechanical force, with our corn planted, cultivated, husked and shelled by machinery, with our broom-corn brush scraped, potatoes dug, apples pared, cored and sliced, our clothes cleaned and washed by chemical and mechanical combinations, there will still be need of head and hand labor, sufficient to tax the strongest mind and hardiest frame. It will ever be true as in the days of Poor Richard, that

> "He, who by the plough would thrive,
> Himself must either hold or drive."

LEVI STOCKBRIDGE, *Chairman.*

HADLEY, Oct. 15, 1857.

NEAT STOCK.

ESSEX.

From the Report of the Committee.

MILCH COWS.—The milk business in the county of Essex, is of considerable importance to the farmer. Large quantities are raised in the immediate vicinity of our cities and large towns to supply the inhabitants with this delicious beverage; consequently the making of butter has comparatively diminished, and the making of cheese, in many cases, is entirely dispensed with. Most of the cows that produce the milk are raised in the adjoining States and purchased by our farmers from the droves. Many of them are purchased about the time of calving. The better ones are selected for future use, and those of indifferent character are well fed, for about a year, more or less, as the case may be, then turned to the butcher; consequently little or no improvement has been made in the breed of our cows. Of late, however, the price of cows has become so exceedingly high that farmers are raising more calves, and there probably have been more raised the present year than for several years previous. This may make a slight improvement in the stock, as most farmers are likely to raise the best calves. But as the custom has heretofore been to turn nearly all the calves to the butcher, little exertion has been used to secure good bulls; a little runt and many of them when they are but two or three days old, but that can be purchased at a low price, will, they think, answer the purpose of a bull, that will cost considerably more. With such a state of things, but little improvement can be expected in our stock.

We cannot reasonably expect much improvement, unless both parents are of superior quality; and if we expect to improve our milch cows, the parents should both be of a breed that possess good milking qualities. If the bull is selected because he has a fine form, or for other qualities foreign from the subject, we cannot expect that good milking qualities can be transmitted through him.

Another subject of considerable importance, is the quality of the milk, (I mean to those who use it for dairy purposes, and that those who sell milk may save the credit of selling watered milk,) as it is not always the cow that gives the greatest quantity of milk, that is worth the most for a dairy; therefore it is desirable that every dairy-man should know the quality of each cow's milk; and here we are liable to fall into an error in comparing the several cows' milk. A cow that has recently dropped her calf, and gives a large quantity of milk, does not give milk of so good a quality as after she has been milked some length of time, and the quantity is somewhat reduced. Hence it has been often said by those who have kept a farrow cow for making butter, that a much greater quantity is produced in proportion to the quantity of milk, than when the cow gave a large quantity.

In regard to the best breed of cattle, whether foreign, native, or mixed, there are different opinions. There has been more or less stock imported for more than two hundred years, and during the whole time it has been mixing with native stock, or that which was previously here; so that now it is somewhat difficult in most cases, to designate what is, or rather what is not, mixed breed. Hence it is not uncommon for the progeny of a red cow and red bull to be ring-streaked or speckled, not because of their being rods placed in the watering troughs, as was done by one of old, but because they are a mixed breed. There are many good cattle in the county, and it matters little what they are called, whether native or mixed; and if farmers will breed from superior stock and no other, great improvement will be the result.

Joseph How, *Chairman.*

Statement of Green Wildes.

My cow was seven years old the 20th of July; she is half-blood Ayrshire, from the State bull. She brought her first calf before she was two years old, and has had a calf every year since. I milked her the present year the first day of April, and she brought her sixth calf the 29th. Her keeping through the winter was salt hay and damaged black grass, with two quarts of cob meal; after April, three quarts of meal and shorts, and no English hay. She has been kept in a common pasture with the other cows, with the addition of one quart of meal and one quart of shorts per day.

	Pounds, Morning.	Pounds, Evening.		Pounds, Morning.	Pounds, Evening.
June 10, . .	14½	21	September 1, .	9	10½
11, . .	12¾	19¾	2, .	8½	13½
12, . .	14¾	19¾	3, .	9¼	10½
13, . .	15¼	22	4, .	9½	11¾
14, . .	13	19	5, .	10	10¼
15, . .	14	19¼	6, .	9	11
16, . .	14	19¼	7, .	10½	14
17, . .	15	18	8, .	10¼	14½
18, . .	14¾	19½	9, .	10	13
19, . .	14½	17	10, .	10¼	11¾
	142¼	194½ 142¼		96¼	121¾ 96¼
Total, ...		336¾	Total, ...		218
Average per day, $33\frac{7}{40}$ pounds.			Average per day, $21\frac{4}{5}$ pounds.		

Byfield, Sept. 29, 1857.

Statement of Paul T. Winkley.

The cow which I offer for premium is six years old. I bought her when she was four months old, and have owned her ever since. Her breed is unknown. She had her last calf last May, and is to calve again next May. Her keeping has been, since she was turned out last spring, nothing but pasture feed. Her milk was weighed morning and evening, for the first ten days in June and September, with the following result:—

	Pounds, Morning.	Pounds, Evening.		Pounds, Morning.	Pounds, Evening.
June 1, . .	15½	18½	September 1, .	12½	16½
2, . .	16	18½	2, .	12½	16
3, . .	16	19	3, .	12	15½
4, . .	16½	20	4, .	12	15
5, . .	16	20½	5, .	11½	14½
6, . .	17	20	6, .	11½	14
7, . .	17	20½	7, .	11	14½
8, . .	17	21	8, .	11	14
9, . .	17½	21	9, .	11	14
10, . .	17½	21	10, .	11	13
	166	200		116	147
		166			111
Total, . . .		336	Total, ...		263
Average per day, 36$\frac{3}{5}$ pounds.			Average per day, 26$\frac{3}{10}$ pounds.		

Eight quarts of her milk makes one pound of butter.

NEWBURYPORT, Sept. 30, 1857.

Statement of Aaron Dodge.

The ten calves which I have entered for premium, do not come under the rules for premium, as they are not over four months and ten days old. They are ten, taken from eighty-six, that I have raised since the 1st of November, 1856. I then began to raise calves by getting them from milk farms, where they could be obtained at one dollar per head, thinking that I might raise eight or ten heifers for cows, but they did not want to part with heifers and not males, so I took both, and continued through the winter to the 20th of May, 1857.

I then had sixty-three living, and had lost seven by the scours and cold weather. The herd had become so large that I then turned them to pasture in New Hampshire, about ninety miles off. I lost three by having to leave them out over night, in a cold rain, snow and hail storm, on the journey. They became chilled and died after they were turned to pasture. I lost two by scours and one by getting mired. The rest, fifty-seven in number, are doing well. I have continued to raise all that I could get since the 20th of May. There are now twenty-nine calves at home, of which these ten are the oldest.

I have tried to raise them as cheap as I could, and in order to do this I have tried various ways, as milk has been high and sells well on account of the high price of cows; and many families are not willing to pay for fodder and cows the money asked, choosing to buy their milk. The price for milk is four cents per quart at the house, in Beverly, and six cents delivered. I tried oil cake boiled and mixed with milk, which does well if too much is not given at a time, as in most cases it will give calves the scours. I have used scalded Indian meal and milk, and scalded flour and milk, all of which does very well if care is taken not to over-feed, so as to bring on the scours. This disease is bad, for it takes a long time for the calves to recover from it, and if over-fed it will come on again.

The cost of raising is about $2.50 per head, until weaned. The last twenty-nine have been turned to pasture as soon as taken from the cows, at one, two and three days old; there they learned to eat grass and drink water while young. When from three to four weeks old they would eat sufficient to wean, and were left to graze for themselves. No meal has been given the last twenty-nine; scalded meal and flour, milk and grass, has been their keeping.

BEVERLY, Sept. 29, 1857.

WORCESTER NORTH.

From the Report of the Committee.

MILCH COWS AND HEIFERS.—It is frequently the farmer's ambition to keep a large number of cows, without special regard to their quality. This, we believe, is a great mistake. The care and keeping of a good cow usually costs no more than one of an inferior quality; while the income of the former may be double that of the latter. The great disparity observed in the profits of different cows, we believe is frequently owing quite as much to a difference in treatment as to blood. Not that we would be understood as speaking disparagingly of the efforts of those who have sought to improve our native cow by a cross with imported stock. While we acknowledge that great improvement has been made in that particular, we also regard a proper treatment of the cow of vital importance in imparting good milking properties.

It is usually the case where a family possesses but one cow, that she is considered above the average of cows in point of excellence. Now why is it so? Is she not in most cases taken from the farm from a lot of cows, where the seller is generally shrewd enough to retain the best and part only with those he considers below an average? To us the reason is obvious. The seller sold the ordinary cow, but he did not sell her future keeping. Usually a great change is produced in the quality of the cow by better care and treatment. She is transferred to a warm stall, furnished with good bedding,—in short, is considered a kind of a pet by the family, where every one has a kind word and a good bite in the form of a crust of bread or some other dainty, for which she never fails to make a good return in an increased flow of milk. We do not wish to be understood that all cows will become good milkers with the best of care; but we *do* believe that all may be very much improved; and that if it will pay to give cows ordinary care, it will certainly pay much better to give them good care and keeping.

OHIO WHITNEY, JR., *Chairman.*

Statement of Joseph P. Reed.

The cow, Fanny, which I offer for premium, is six years old, of Holderness and Ayrshire breed, raised in Princeton by myself.

Time of last calving, January 14, 1857. The quality of the calf is good; as it is a heifer, I am raising it. Fanny was last dried in November, 1856. Time of next calving, January, 1858. Her keeping has been nothing but pasture feed.

The weight and quantity of milk, beer measure, the first week in June, was as follows:—

	MORNING.		EVENING.	
	Pounds.	Quarts.	Pounds.	Quarts.
June 1, ...	18.00	7.20	21.00	8.40
2, ...	16.25	6.50	20.00	8.00
3, ...	16.00	6.40	20.00	8.00
4, ...	15.75	6.30	21.25	8.50
5, ...	16.00	6.40	20.00	8.00
6, ...	17.25	6.90	19.25	7.70
7, ...	15.50	6.20	20.00	8.00
	114.75	45.90	141.50 114.75	56.60 45.90
Total, ...			256.25	102.50

Her milk, the first week in June, averaged 36$\frac{17}{28}$ lbs., measuring 14$\frac{9}{14}$ quarts per day.

Weight and quantity of milk, beer measure, for the first week in September:—

	MORNING.		EVENING.	
	Pounds.	Quarts.	Pounds.	Quarts.
September 1, ...	15.25	6.10	18.00	7.20
2, ...	15.25	6.10	17.75	7.10
3, ...	15.25	6.10	17.50	7.00
4, ...	14.75	5.90	17.50	7.00
5, ...	12.75	5.10	19.25	7.70
6, ...	14.50	5 80	17.25	6.90
7, ...	14 75	5.90	17.00	6.80
	102.50	41.00	124.25 102.50	49.70 41.00
Total, ...			226.75	90.70

Average weight per day, 32$\frac{11}{28}$ lbs., measuring 12$\frac{67}{70}$ quarts, a small fraction less than 13 quarts daily, 8 months after calving, and 4$\frac{1}{2}$ months before calving again.

When on trial we did not set all her milk for butter, as we had to use out of it for the family; her milk is of superior quality. We have made and sold 154 lbs. of butter after using what milk and butter we wanted in the family.

Said cow has had nothing but pasture feed, she has never had meal or roots; has always been wintered upon straw, husks, poor and good hay.

PRINCETON.

From the Report of the Committee on Two and Three Years Old Steers.

STEERS.—In the steers was evinced the care that had been taken to blend the different breeds of Devon and Durham with the native, in order to produce the best race of grades to be attained; and in awarding the premiums, reference was had to the promise of future usefulness, rather than to future size or beauty. No department of our show is of more importance than this, for unless we have good steers we can have no good oxen. Your committee had still another office to fulfil, viz.: to judge of trained steers. There was no competition in this department, as there was but one pair of one-year-olds entered. But they were truly worthy of much commendation for the perfection to which they had been brought, being just as manageable out of the yoke as in it, and each as much at home on one side as the other, in fact performing any thing required of them. The steers entered were owned by William W. Benson, of Princeton, a minor, to whom we award the premium of $3; and in consideration of the peculiar, and in these days, very singular circumstances in which he presents himself to our notice, we recommend a gratuity of $5, two in money and three in books, to be selected and presented by the president and secretary of our society, in order to encourage him in the laudable and very useful pursuit to which he devotes himself and his hard earnings. Training steers may seem a very simple and common place affair, but there is no more important, useful, or, indeed, more profitable department in raising stock. Well broken oxen are vastly more valuable than those which are merely made to go from fear of the lash, as is too often the case, aside from preventing the vexation, ill feeling, much pounding and some swearing that is caused thereby. The idea that cattle are susceptible of training, that they are sensible of kind treatment, and that they have good qualities and dispositions that may be developed instead of bad ones, is becoming more and more apparent, as men take more pride in their good looks and condition, as well as their performances; and as this increases, more care and attention will be paid to matching, thus increasing their beauty as well as their value and usefulness.

EZRA KENDALL, *Chairman.*

From the Report of the Committee on Yearling Steers.

The great agricultural interests of New England, and some of the other older States, being generally in the hands of men of moderate means, and consequently a limited area of land, their efforts in this useful branch of husbandry must necessarily be directed to practical and profitable results. And to this end the farmer, who attempts to raise this kind of stock, will of course have one of two objects in view, viz.: to supply the stall, or the yoke, because these are the great practical uses for which steers and oxen are wanted at the present day.

Now if the farmer would raise stock successfully for either of the purposes above named, after having determined to engage in the business, he should not commence till he has first definitely fixed in his own mind the object for which his steers shall be raised—whether for the stall or the yoke; nor until he has learned, so far as he may be able, what qualities are required in the animal to best adapt it for the purpose designed. Having done this, he should determine upon some plan or system by which to be governed, and then go to work diligently to carry out that plan, just as the skilful mechanic when he would construct a good house or any thing else, first ascertains what qualities are required to constitute a good article of the kind desired, and then lays out his plan to secure those qualities, taking care always to obtain the most approved plan at the beginning; so the would-be successful stock rearer should be careful in maturing the plan of his work, and having once adopted it abide by it, till successful, or he has found by experience that it is wrong.

Every farmer engaging in this business, acting upon the known law of reproduction in nature, " that like produces like," with improvement by proper nurture and cultivation, should select animals, both male and female, from which to raise his stock, possessing in the highest degree practicable, those qualities required by the object to which it is to be devoted; and having obtained his young animals, should commence at *once* to perfect them according to the plan adopted, and not wait till the first year—the most important part of the life of the animal—for a healthy start toward perfection has passed away, and they perhaps stunted forever, as is too often the case.

It is rare that very inferior animals of this kind, at one year old, ever attain to any high degree of perfection, any more than vegetation which is puny when the season is a third gone. Such may, in some instances, be the case, but they are exceptions to the general rule, and should never be relied upon by the farmer who would be certain of success.

CHARLES H. MERRIAM, *Chairman.*

HAMPSHIRE, FRANKLIN AND HAMPDEN.

From the Report of the Committee.

STOCK IN GENERAL.—The fear which was expressed in a prophecy, that the new trotting course would attract horses to the show ground to the exclusion of cattle, was proved to be unfounded by this year's exhibition. Equally false was the prediction, that the Fair and National Horse Show, at Springfield, would leave the public interest and curiosity so exhausted as to furnish within the enclosure of the society few animals to be seen and few spectators to look on. The show of stock was full and various, yet of uniform excellence. Veteran farmers did not remember so rare a gathering of oxen, steers and cows. The new and convenient enclosure, if it had something to do with the success of this year, will doubtless present grander displays of animal life and manners hereafter. The society has now a local habitation as well as name. It takes on a new character by having a place it can call its own, a home, and lays new claims upon all the vicinage, to send up annually, from pen, field and fold, every useful and ornamental quadruped which may serve as proof and example of the improvement of stock. These claims will be acknowledged and met. The show grounds will quicken interest and skill in stock raising, and will annually gather and exhibit the evidences of such enterprise.

S. T. SPALDING, *Chairman.*

NORTHAMPTON, October, 1857.

HAMPSHIRE.

Report of the Committee.

We think we shall be sustained in the statement, that the stock, as a whole, compared favorably with former years, and in some departments, was in advance of any.

The Amherst town string was the largest, numbering fifty-six pairs, and that from South Hadley the best, containing twenty-four yokes, almost every one choice oxen, averaging 3,300 lbs. a pair. The string from Hadley numbered forty-eight pairs; a large proportion were decidedly good.

The first herd premium was awarded to Alfred Baker, of Amherst, mostly grade Devons. Mr. Baker has raised some good stock from the bull and cow presented to the society by the Massachusetts State Society, several years since, and greatly improved his herd; his stock shows that a cross of Devon and good native is worthy of attention, and we think the farmers did not show a just appreciation of that pure Devon stock for a cross.

Until correct information is more generally diffused on the subject of stock-breeding, the highest excellence will not be attained. The first cross, as a rule, will be the best, and any one breeding from a grade animal, however fair looking, is liable to disappointment.

We would suggest, that when an animal is entered as of distinct breed, or a grade of any breed, the owner should satisfy the judges of the purity of the breed or the grade.

The State Fair, held in Boston, showed, that there is good stock in the State of pure blood,—Short-horns, Devons, Ayrshires, Alderneys and Herefords,—and now that it is brought more fully to the notice of the farmers, we look for a rapid improvement in this department.

None of the bulls were thought worthy of the first premium by the committee.

There were thirteen entries of working oxen and eight of four years old, good looking, and several pairs well matched. A pair of four years old twins, weighing 3,900 lbs., owned by Cephas May, of Conway, attracted much notice,—their symmetry of form and perfect training was the subject of universal admiration. The kind manner of the driver they seemed fully to appreciate, and it was demonstrated that a good teamster may be very sparing of the lash.

There were a few fat oxen, but the number and quality were not equal to the exhibitions of some former years. The same remark will apply to milch cows.

There were twenty-eight entries of steers, heifers and calves, and this part of the exhibition was very creditable, and is evidence, we think, of the usefulness of the society in stimulating the farmer to raise good stock instead of going from home for it. We could but notice the pride with which owners pointed to the stock raised on their own farms.

Of sheep there were few, and we are sorry to see so little attention given to raising sheep, when the testimony of all who keep a flock is, that it is their most profitable stock.

There were fifteen entries of swine, numbering about seventy-five. The swine of this vicinity have been so judiciously crossed and bred, that it is doubtful whether there remains much improvement to be made.

L. Sweetser, *Chairman.*

Statement of William Hunt.

Milch Cows.—The cow which I enter for premium was eleven years old in August, 1857, is one-fourth Ayrshire and three-fourths native. Her maternal ancestors have not been large, but remarkable for the richness of their milk and the good quality of their butter. She weighed 960 lbs. on the first of this month.

Our first trial of her was during the second week in June, when we made from her milk 15 lbs. 1 oz. of butter, or an average of 2 lbs. 2½ oz. per day. The milk was not weighed at this time.

The second trial was made the last of June and early in July. During a period of one week, the quantity of milk was 112 quarts, which weighed 268 lbs. The daily average was 16 quarts, or 38¼ lbs. Her butter, during this week, weighed 14½ lbs., and the daily average weight was 2 lbs. 1 oz.

My third trial occurred during the second week in September, when she produced 78 quarts of milk, weighing 191½ lbs., and averaging 11 quarts, or 27 lbs. 5 oz. each day; from which we made 10¾ lbs. of butter, an average of 1½ lbs. per day.

The food of this cow has been regular through the season, it being a good pasture, and two quarts of corn meal each day.

I have the reputation, among my neighbors, of being rather a liberal feeder, but I wish to say to them that I think it pays. On three acres of ground I have kept my three cows to October first. Two and a half acres of this land is an old pasture, turned over and seeded to grass the last year. The other half-acre is about my barn. Neither piece being in a high state of cultivation, but they have given my cows a full supply, (with the addition of a small allowance of meal daily.) One of the three cows was not put on this pasture until the middle of July, the other two the latter part of May.

SUNDERLAND, October 20, 1857.

FRANKLIN.

From the Report of the Committee.

MISCELLANEOUS STOCK.—The committee on "Miscellaneous Stock," believing that their office was to examine and bring into notice such animals as would not fall within any class entitled to premiums, and such as should be presented for exhibition only, have attended to the service expected of them, and report:—

A fine herd of animals, eleven in number, was presented by Hon. Henry W. Cushman, of Bernardston, for exhibition. This gentleman, having heretofore rendered great services to the society as its active, intelligent and efficient president, is still untiring in efforts to enlarge its usefulness, and improve every department of agriculture.

This herd comprises seven generations of stock, beginning with a cow now ten years old, which was a cross of the Durham and our native breed; there were present ten descendants from this cow; and all were reared on Mr. Cushman's farm, by his thorough farmer, Marshall Slate. They gave evidence of great care in breeding, producing fine forms, of fine color—bright red. The two oldest cows, being of the native and Durham cross, all the rest, descended from these, were half-blood Devons. From such crossings, the best results were to be expected. The advantages of the Devon mixture with the native and Durham were apparent. The animals were not in high flesh, but in good thrifty condition, showing good judgment in rearing and management. One two years old heifer, and two pairs of steers, though not very large of their age, were very handsome, promising stock.

Your committee cannot fail to remark, that this family of stock was commenced on the same farm by Gov. Cushman's father, the Hon. P. L. Cushman, deceased—a noble specimen of farmer and man. We are glad to render a tribute of respect to the memory of one of so great worth in all the walks of life. To him, too, this society, and indeed this whole agricultural community, are greatly indebted—a wise and good man.

Mr. Timothy M. Stoughton, of Gill, presented for exhibition a valuable herd of Alderney cattle, nine in number ; thorough-bred animals. Two of the cows were imported from England ; the rest, with several other cows, too forward in calf to be driven to the field of exhibition, were descended from them. These are of the Alderneys imported by George Bird, Esq., of New York. The stock has been leased to Mr. Stoughton for several years ; most of it was reared by him, and his experience with it enables him to appreciate its value. He speaks in the highest terms of the milking qualities of the cows, especially for yielding butter. Such is their repute in England, where they are said to stand ahead of any other race, not excepting the Ayrshires. The animals would be deemed of small size, compared with much of the neat stock of the county, and not of the most perfect symmetry of form. They are eminently for the dairy ; and it is believed they are a valuable acquisition to the farm stock of Franklin.

Mr. Stoughton, who is one of our most enterprising farmers, with a laudable spirit and at some sacrifice, by the request of the officers of the society, presents this stock, not for premiums nor for sale, but for exhibition only.

If the funds of the society will admit, the committee think Mr. Stoughton should receive a gratuity of $10.

Geo. Grennell, *Chairman.*

NORFOLK.

From the Report of the Committee.

MILCH COWS.—At the late exhibition, the duties of the committee were less arduous than formerly, in consequence of the superior arrangement of animals; for which they think the committee of arrangements and superintendents are entitled to much credit. They are also happy in being able to say, that competitors complied much better with the requisitions of the society, in making their statements, than in 1856.

Different writers have given their marks as signs of a good cow. One, in speaking of a breeding cow, says:—

"A perfect breeding cow ought to have a fine head, with a broad, smooth forehead; black eyes; clean horns; a smooth, elastic skin; a large, deep body; strong, muscular thighs; a large white udder, with long and tapering teats; together with every other token requisite in a bull, allowing for the difference in sex. Further, such animals ought particularly to be young. Milch kine are not good for breeding after they are twelve years old; indeed, it has been said that the first calf which a cow brings is the best for raising."

Mr. Culley gives the following marks: "Wide horns, a thin head and neck, dewlap large, full breast, broad back, large and deep belly; the udder capacious, but not too fleshy; the milky veins prominent, and the bag tending far behind; teats long and large; buttocks broad and fleshy; tail long and pliable; legs proportionable to the size of the carcass; and the joints shut. To these outward marks may be added a gentle disposition, a temper free from any vicious tricks, and perfectly manageable on every occasion. On the other hand, a cow with a thick head and a short neck, prominent backbone, slender cheek, small udder, or a fleshy bag, short teats and thin buttocks, is to be avoided as totally unfit for the purposes either for the dairyman, the suckler, or the grazier."

And Mr. Wilkinson humorously sums up thus:—

"She's long in her face, she's fine in her horn,
She'll quickly get fat without cake or corn,
She's clear in her jaws and full in her chine,
She's heavy in flank and wide in her loin.

She's broad in her ribs and long in her rump,
A straight and flat back with never a hump;
She's wide in her hips and calm in her eyes,
She's fine in her shoulders and thin in her thighs.

She's light in her neck and small in her tail,
She's wide in her breast and good at the pail,
She's fine in her bone and silky of skin,
She's a grazier's without and a butcher's within."

Others might be quoted, but enough has already been said to guide the inexperienced in the selection of cows.

In conclusion, the committee would state that the venerable cow, mentioned in last year's report, owned in Milton, is still in good health, being now nearly twenty-five year's old; and they would further say that her owner has two other cows, one of which was bought in 1839 and the other in 1840. Consequently, each of them must now be over twenty, and probably twenty-two or twenty-three, making the united ages of three cows, owned by the same person, nearly or quite seventy years.

This circumstance is not mentioned with the belief that cows of such an age are profitable, but because it is thought that another such an instance of longevity in cows can scarcely be found.

Elijah Tucker.

Milton, October, 1857.

HORSES.

ESSEX.

Report of the Committee.

Brood Mares.—The committee on brood mares report that they are pleased to note the improved condition of such stock within the few past years. Farmers are just beginning to realize the difference in breeding from old, worn-out stock, and from young and sound animals, of good speed and spirits, and that bring colts that sell at a year old for hundreds of dollars. Many such animals, if the owners were to be believed, which we have no reason to doubt, were on the ground this year. The notion that any slow horse will do for the farmer, is a very foolish one. The chairman can state from his own experience, that a high-spirited, fast road horse, with a little careful training, is as much better adapted for the work of the farm, as for the road. The difference between such a horse and one of an opposite character, can hardly be estimated, where you have to pay so high for farm labor as at the present time. I have the past season, broken in to the plough and harrow two high-spirited fast road horses, that one, to see on the road, would hardly think of using in the plough. But I can show ploughing done by them among stumps and roots, that would be thought rough work for steady oxen.

WILLIAM OSBORNE, *Chairman.*

MIDDLESEX.

From the Report of the Committee.

MARES AND STALLIONS.—In reporting upon breeding mares and stallions, your committee would make some suggestions, which they consider worthy of note.

In selecting a breeding mare, we should look for an animal of sound constitution, full of vigor and strength; not a broken down aged beast turned over to close her life as a breeder. The general good qualities of the breeder should receive particular regard; good disposition, smoothness of limb, soundness of wind, &c., and the general structure of the animal, "the make of the beast," are essential requisites. A breeder should possess a broad, prominent chest and breast, with the largest breadth across the hips, and a capacious foal bed, and withal rather loosely made. The other parts may be suited to the owner's taste, or requirements. Great caution should be used with every mare with foal, and particularly in regard to long and hard driving, or over-working of any kind, these being highly injurious to both dam and foal.

All stallions (stock horses) should be of sound constitution, and without blemish. This should be an axiom with all breeders. Then their conformation should correspond to the wants and necessities of the breeder. The different breeds will contribute, each in its particular line and class, to impress upon the foal the peculiarities, beauties, and deformities of that particular class. The Black Hawk will give grace, symmetry and tractability. The Morgan is a more compact specimen, with good proportions, and great enduring powers.

What we farmers of Middlesex want and need is, the combination of as many of the good qualities as one hide can cover. We need a fair roadster, enduring and quiet; a good cart, plough, and general worker, "tractable and tough;" a family horse for mother and the boys to drive, kind and willing, with good action, for we can keep but one horse, or at the most a pair. We must cast a judicious eye at both sire and dam, that by a well balanced admixture of the good parts, or a reasonable offsetting of the inferior, the foal may present a specimen of a well proportioned, excellent animal, in all respects. Should we possess a rather coarse limbed mare, and other parts proportioned, in all probability we would get a fine foal from a beautiful limbed symmetrical Black Hawk, and *vice versa*. And in this connection, we would respectfully suggest to those who may make up the class of stallions for premiums, that a covering stallion should be five years and upwards, for general use.

Now we have the foal, how shall we treat him? We have a fair representation of a horse of good qualities and disposition in embryo. How shall we enhance and mature these qualities to usefulness, and this disposition to service? From four to six months' good suck from the mare, is an excellent early diet, provided that the mare has a generous milk-giving sustenance herself and is a milker. Then the foal should have a good keep of rowen, with some milk, say one quart per day, through the first winter, then good summer pasture, and carrots and hay for winter feed. Colts never should be pampered, nor starved, frozen, nor made to be the receptacles of vermin. In breaking and training, the first lesson should be, gentle familiarity; the second lesson should be constant and familiar gentleness; the third lesson should be unceasing patience and enduring kindness, with decision. He who has not "Job's patience under afflictions," should not attempt to handle, to break, or train a colt, any more than he or she should attempt to teach a child, without the same absolutely necessary qualifications. Patience and kindness should be the word and the act. Impatience and harshness to the colt, will give us restiveness and viciousness in the mature horse.

We of Middlesex cannot compete with Vermont, in the business of raising horses. But the manifest interest shown in our county, by the exhibition of so many fine breeding mares, and so many justly noted stallions, with their progeny, from the colt to the mature horse, each and all with their peculiar niceties, bear ample testimony that the breeding and rearing of God's noble animals, are receiving judicious and merited attention, and in some instances afford a satisfactory remuneration.

S. H. Rhoades, *Chairman.*

WORCESTER NORTH.

From the Report of the Committee.

Colts.—The committee feel compelled to say that there is among breeders of horses, great evidence of inattention to the stock from which colts are raised. Some of the colts presented for our inspection were large and well formed, but logy and without spirit, and gave evidence of an unfortunate cross of sire and dam. A pure blooded horse should always be selected as a sire, if he can be found, and the cross breeds or scrub races should be avoided as much as possible. The purity of the blood of the dam is also very important; and it should be borne in mind that the size and beauty of a mare is not always so sure a guaranty of her bearing good colts, as her own purity or predominance of stock. It is a law of generation, abundantly proved in the raising of horses, that the highest and most intensified vitality will bestow a preponderating character upon the offspring. This law should be observed and obeyed in breeding horses. Those animals whose vitality has been enfeebled by frequent crossings, and who possess no pure marks of any valuable breed, ought to be withheld from generating. This is a very important subject, and we would urge it upon the society as greatly conducive to the pecuniary interest of breeders. A poor colt is poor property, while a good colt, of a pure blood, is the most profitable kind of stock to be raised by a farmer. We say then, to all farmers, improve your breed of horses, and let no misjudged economy deter you from availing yourselves of the purest thorough-bred horses from which to raise your colts.

Alfred Hitchcock, *Chairman.*

HAMPSHIRE, FRANKLIN AND HAMPDEN.

Report on Horses.

The exhibition of horses this year was every way an improvement upon the past. The number of entries in the several classes was not only much larger, but there was manifestly what is so much needed, a decided improvement in quality; and the exhibition sufficiently proves the wisdom of the society in so tastefully and appropriately fitting the grounds for their annual exhibitions.

The example so nobly set by the society in this respect, is followed by others in this vicinity on a more extended scale, and elaborate finish. Others are provoked to good works by our example.

While the society has done so much to encourage the exhibition of horses, as a part of the productions of the agriculturists, much still remains to be accomplished.

The only reliable source of improvement in the quality of our exhibitions, must of necessity be in the breeding of stock. And while we recognize this as the source of our errors in the past, it is also the source from whence we are to hope for future improvement.

The money value of the horses of this country, equals one-half the money invested in railroads, or five hundred millions of dollars, if the railroad interest amount, as is supposed, to one thousand millions. And it is not too much to say, that this enormous sum can be doubled during the next ten years, by simply improving the quality of the horse, by proper attention to the subject of breeding, without increasing the number.

The quality of the breeding mares on exhibition, satisfied your committee that what is needed is better sires for their progeny—better blood, better bone, better spirit, and better endurance—in short, better horses.

Let the horse breeder study the subject and do his business intelligently, and not look upon his results as mere chance, not under his control, for nothing in nature is more entirely under the guidance of man, than the future generation of horses.

Let the blooded mare be selected with care—free from constitutional or inherited imperfections—which she will be very apt to transmit to her posterity, but accidental imperfections are of less consequence. In short, let the animal be as perfect in all the essential qualities desired in the colt, as possible—due reference being had to the physical capacity for the great function of reproduction—and the higher the strain of the desired blood sought, the better; and you will have accomplished all that is possible on the side of the dam.

But the most common mistake is on the side of the sire. A mistaken and ruinous economy dictates that a cheap sire shall have preference; whereas a horse of sufficiently high strain of blood to justify breeding from him, is necessarily one of great value and corresponding high price to his purchaser, and a colt from whom must cost more as well as be worth more than from an inferior horse, who costs but little, whose service can be obtained cheap, and whose colts follow their sire both in their qualities and value to the breeder.

To illustrate the economy of breeding from the two classes of horses above suggested: The former pays, say $20 for the service of an ordinary horse, and gets a colt which will be worth in the market, at two years old, $100, which pays him perhaps a fair profit, and with this he is satisfied, for it is proverbial that our agriculturists are, with certain moderate profits.

C. C. Chaffee, *Reporter.*

HAMPSHIRE.

Report of the Committee.

Mares and Colts.—The breeding of horses is a very important branch of husbandry. There are very few persons who are not pleased with a fine colt or a beautiful horse, yet few have the taste and skill requisite for breeding superior animals. Most persons who desire to breed animals of superior quality, fail to pursue a wise course for producing them. They either make a bad choice of their breeding animals, or unwisely couple them. It is quite common for breeders to use a horse which pleases them, whether his size or conformation are adapted to the mares he is coupled with; and the progeny often manifest the folly of the course, by the good points of the sire being neutralized by the defective structure of the mare.

Many breeders seem to think, that if they use a stallion of good style and qualities, the progeny must be good, however inferior the mare may be. The Arabs are said to care more for the good qualities of the mare, and to select for breeders such as manifest great endurance as well as speed, and to keep their records of pedigree by their mares. When breeders become as careful in the selection of their mares, as they are generally in the choice of horses for breeding purposes, there will be a prospect of greater improvement in the breed of horses than has heretofore obtained. Youatt says: "It may be justly affirmed, that there is more difficulty in selecting a good mare, to breed from, than a good horse."

The qualities of both parents are doubtless transmitted, but, perhaps, not uniformly in an equal degree. It is common for the foal to resemble the sire more than the dam, in size, style, and form; while, probably, the dam ordinarily imparts her own constitutional qualities to her offspring, in greater degree than the sire—hence the folly of breeding from mares with feeble or broken constitutions.

To accomplish the best results in breeding, the animals chosen for the purpose, both male and female, should be such as have descended from healthy and well-bred ancestry, with good constitutions, courage and temper, having as much size as is desired in the progeny, with form adapted to the purpose for which the foal is designed. In breeding for good roadsters, such animals should be selected as have a conformation adapted to easy and rapid motion. The breeder may not expect a fine trotter from a horse with heavy, upright shoulders, however perfect the shape of the mare may be.

The horses used for stock are generally too large for the mares. A colt that is designed for a stock-horse is usually more highly fed than he would otherwise be, and his size is thus increased; while the female commonly gets shorter keeping.

She is also often put early at work, and her growth is by that means checked, hence a greater disparity in size than nature would give. It is quite common for breeders to select large animals for sires, when it would be much wiser to choose fine, compact ones of medium size. The greatest improvement ever made in England, in her breed of horses, was accomplished by the use of small stallions of eastern blood, coupled with mares having much more size. Skilful breeders adopt the rule of using a male proportionably smaller than the female. By this course larger lungs are obtained and greater perfection in form. The fœtus generally takes its size from the male parent, and the female, if much smaller than the male, will not ordinarily properly nourish her offspring, either before or after birth. Animals improperly nourished in youth, are usually coarse. "To produce the most perfectly formed animal, abundant nourishment is necessary from the earliest period of its existence until its growth is complete."

It is usually wise to do well whatever we do. It is so in the raising of horses. The cost of rearing a fine animal is not much greater than the rearing of an inferior one. The first gives to the breeder both pleasure and profit, the latter little of either. How frequent is the complaint, that "there is no profit in breeding horses;" and yet we know that horses really good, uniformly command remunerating prices, and often large profits. Let those who would make the breeding of them repay well the cost, be sure to make a wise selection of their breeding animals, and give to their offspring a good supply of suitable food, with proper care, and they will not be disappointed.

G. C. MUNSELL, *Chairman.*

SHEEP.

WORCESTER NORTH.

From the Report of the Committee.

Your committee had hoped that the pens allotted to their department would be well filled, and that there would be some difficulty at least, in deciding who were the most entitled to the premiums. In this we have not been disappointed. Never since the formation of the society, has there been so fine a display of sheep as has been seen here to-day.

There were nine entries; three flocks, six bucks, in all, forty-four. We are aware that most farmers think more of a fast horse, or a work horse, an ox, or a steer, a cow, or a fat swine, than they do of a sheep, or a flock of sheep. Among most farmers this kind of stock has gone out of date—it has become nearly obsolete.

But your committee have no doubt that sheep husbandry can be made profitable in this part of the county. In England, farmers engage in sheep husbandry for the sake of enriching the soil. This is done by fencing off a lot of an acre, and sometimes less, and there keeping from one hundred to three hundred sheep, feeding them with hay, grass, or roots, until the soil is well fertilized; then they are removed to another lot, and this process carried on until a large tract is prepared for the plough. Without sheep, many farmers say they could do nothing with their land. We believe, also, it is one of the best ways of reclaiming rough pasture lands. Sheep not only enrich the soil, but destroy bushes, briers, and thorns.

To show that sheep husbandry can be made profitable in this State, we would refer to the statements of a few farmers in Hampden County. One says that he had last year, nine ewes and one buck, a mixture of the South Down and native. About the first of January, seven of the ewes dropped each, one lamb. In April the remaining two dropped each a pair of twins, and about the first of July, the seven named first, dropped one lamb each, making in all eighteen lambs from nine ewes, within seven months. In June, eight of these lambs were sold for $32, or $4 per head. Another says that his income from ten sheep, last year, was $69. And another, that the net profit of ten sheep was $41, or $4.10 per head.

The successful wool-grower endeavors to raise sheep, as well as wool for the market; consequently he has regard to the size as well as the form of the animal. If any one wishes to raise sheep for the wool, we recommend the Merino mixed with the native; if for the shambles, then the Leicester mixed with the native.

There are two objections made to sheep husbandry. The first is the difficulty of fencing against them; and the second is the danger to which they are exposed from the canine race.

But there is no more difficulty in fencing against sheep than the horse, the ox, or the cow. It is true, they require a different fence from most other animals. But one made of rails, boards, or even brush, will stop any sheep worth keeping. With regard to dogs, we believe that every town should pass a vote, not only to restrain neat cattle, horses and swine, but dogs also, from running at large.

We recommend that the society request that hereafter every one who offers a flock, or a single sheep for premium, shall make a written statement of the weight of each fleece, of the kind and value of each, the number and value of the lambs, if any; also the expense and the net profit of each.

JOHN M. HARRIS, *Chairman.*

POULTRY.

ESSEX.

Statement of Horace F. Longfellow.

I offer for your inspection two baskets of Bolton Gray chickens, which were hatched on the 15th of May, making them four months and a half old. Bolton Grays usually commence laying at the age of five months.

I also beg leave to submit a statement of the produce of a part of my flock of hens, (which I do not exhibit because they are shedding their feathers, and do not present a fine appearance,) from the 1st of June, together with the cost of keeping. I commenced my account with nine hens of the following varieties: Four Bolton Grays, four half Boltons, and one half-breed Shanghai. On the 26th of June, one of the half-breed Boltons died suddenly, reducing the number to eight, which were kept shut up during the months of June and July, with the exception of a few moments at night. The remainder of the time they have had their liberty. They have been fed on corn at one dollar per bushel, and have consumed eighteen and two-thirds quarts per month, worth fifty-eight and one third cents.

Number of eggs each month:—

June, 12 doz. and 4; July, 12 doz. and 7; August, 12 doz. and 9; September, 13 doz. 6, (estimating five for to-day, as that has been their average for the past week,) making 50 doz. and 2. Sold them for 19 cents per doz., amounting to \$9.72. Cost of keeping at 58⅓ cents per month, \$2.33⅓. Net profit, \$7.38⅔.

NEWBURY, September 30, 1857.

HAMPSHIRE, FRANKLIN AND HAMPDEN.

Statement of A. C. Howland.

I have kept the present season fifteen hens and two cocks. The hens have laid from the 1st of January to the 6th of October, 1,638 eggs and raised fifty chickens. I keep the greater part of my hens in a yard thirty by forty feet, with a good shed facing the south, where they roost and have their nests. I keep earthen nest eggs, which neither freeze nor decay. I always bring in the new eggs every night, and never break up the nests. If a hen desires to sit and I do not wish to have her, I shut her up in an adjoining yard, about eight feet square, and if convenient, shut a cock up with her, and she will soon give up her sitting propensities, and then let her out with the rest of the hens. In a few days she will commence laying again. There is no hunting for hen's nests. I have not had an egg spoiled by a hen stealing her nest for six years, and there has not been a day for the last nine months but some one has laid. I keep a bin of dry ashes for the hens to roll in, and their roosts are made of sassafras poles, with the bark on; the bark is supposed to keep off the lice. I feed them with corn meal mixed with warm water in winter and cold in summer, corn, wheat, oats, boiled potatoes, meat, burnt bones, old lime mortar, cabbage leaves, grass in summer and rowen hay in winter. The greater the variety of food the better. They want drink at all times. They will eat and drink almost any thing that man or beast will, except beans, tobacco and rum. If a healthy animal dies by accident, and the meat is not fit for family use, or any other meat whatever, if *well salted*, and boiled until it is tender, the salt will not hurt them, and they will devour it greedily if confined and not able to obtain insects.

I was riding leisurely a year or two since through a distant neighborhood, when I noticed at almost every house there would be one, two, and sometimes three dogs, lying on the terrace or playing in the yard, ready to yelp at every passing traveller. The thought struck me very forcibly how much better it would look if there was a respectable hen-yard filled with a few fat hens,—not in the front yard however,—in some warm, dry and pleasant place. Hens will not do well in a cold, wet and dark place; they want the sun. Eggs have been worth here from seventeen to twenty-five cents per dozen, chickens thirteen cents per pound, when dressed, or fifty cents apiece alive.

One important item in keeping your fowls shut up is, that you can save the manure much better. It may be favorably compared with guano. Last spring, when I planted my corn, I scraped up what I could conveniently, and put about a quarter of a shovelful on the top of the barnyard manure in the hill. Whether this was too much, or not enough, I do not know, but the result was, that the corn was about one-third heavier, and the pumpkins were double in quantity those in the adjoining rows. While I recommend keeping hens shut up, they may be let out some parts of the year, just before night, if your garden is not too near. Chickens will grow better to run at large if they are well fed, but if you are blessed with near neighbors, you will do well to see that your fowls do not trouble them. It makes some people nervous to have their crops destroyed by their neighbor's fowls. I would recommend to every family that likes good living, and has more land than is needed for buildings, front yard and garden, to have a respectable hen-yard and house for the hens, with a supply of good fowls. If your means are small, keep but a few hens. As the hen fever has entirely subsided, no one can make himself independently rich by keeping fowls. If you will keep good fowls, and keep them well, they will pay well.

Young hens will lay the best. It will be necessary to raise a few chickens, and if you wish to raise good and healthy ones, it is necessary to cross your breeding fowls every year. I have a pullet which commenced laying in August, when she was about four months old, and has laid ever since. She was a cross between good sized fowls, while the pure blood, which have been allowed to breed in-and-in for several years, will not probably lay until they are twice as old. Breeding in-and-in, is one of the most destructive things for good fowls, or any thing else.

I think it is more profitable to raise eggs for market than it is chickens, at the present prices. If you wish chickens or eggs for your own use, raise good sized ones, and keep them well, but if you wish to sell your eggs by count, which is an unjust way, you can keep small hens, probably, with less expense.

I have killed, to-day, some chickens between five and six months old, which weighed over five pounds each when dressed.

At the present high prices of grain, it has cost about three mills per day to keep each hen, and no more, this season.

Statement of Frederick W. Clark.

The first of April, 1857, I purchased ten hens and a cock, for $3. Since that time I have sold twelve dozen eggs, also having what we wanted for our own use. I have also raised 125 chickens: one hen had twenty-five chickens. Some of my hens are part common and part game, others Bolton Gray, and part Shanghai. When a hen comes off with a brood, I put her in the coop, and keep her there till the chicks are old enough to take care of themselves, which is in about five weeks. When they first come off, I feed them on Indian meal, mixed with a little warm water; but as they grow older, I mix it with cold water. When they are young I give them a dish of food every day, which I think makes them improve very fast.

In this manner of raising them, I have lost but a very few. I think that the best coops are made after this manner: make a box about four feet long, two feet and a half high, and two feet wide, with boards on the back side, and on both ends, with slats in front, with one-half of the bottom boarded, and the other half open, so that the hen can come to the ground. The chicks do better when the mother has a chance to scratch, and a dry place to brood them at night, always taking care to have a cup of clean water within the reach of the hen. In this manner I have raised my poultry this season, and I have never seen chickens do better.

Profits on ten hens from 1st of April to 1st of Oct., 1857.

April 1. Bought ten hens, ...	$3 00	
Bought eight bushels of meal, .	8 00	
		$11 00
Have sold 12 doz. eggs, at 25c., . .	$3 00	
50 chickens, at 20c., . .	10 00	
Have on hand 50 chickens, at 25c. . .	12 50	
10 old hens, 50c., . .	5 00	
		$30 50
Profits, ...		$19 50

NORTHAMPTON.

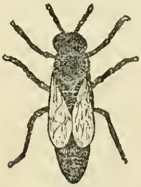
BEE CULTURE.

Far less attention has been paid to this important branch of farming than its profits and the pleasures attending it deserve. It is worthy of a greater encouragement by the county agricultural societies. Several entries of hives and swarms of bees and specimens of honey were made at the State Fair, and among others those of Henry Eddy, of North Bridgewater. The following statement of Dr. Eddy contains some interesting facts on the subject:—

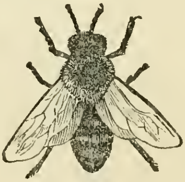
Social Organization.—Bees are never known to live in a solitary state. They proceed upon the principle that it is not good for them to be alone. In this respect they differ widely in their habits from the wasp, the hornet and various kinds of flies. There is a reason for this which I do not recollect to have seen stated. The material which is used in the construction of their nests or cells, is different from that which is employed for the same purpose, by solitary insects, and this material cannot be used except at a high degree of temperature. The instruments to be employed in comb-building, are small, and the wax must be softened, in order that it may be spread. A solitary bee cannot come and deposit his quantum of wax, and thus enlarge the cell. The degree of warmth which is necessary for comb-building, is produced by the clustering together of the bees. Their animal heat, when they collect together in a mass, is sufficient for this purpose. Hence we are able to understand why it is they cluster very compactly together, and remain quiet for the most part for several days after swarming, when the foundations are to be laid, and comb is to be built in their new home. The comb is built the most rapidly during the night, when all are at home, because the temperature is then the highest, or the animal heat is the greatest. It is observed that the temperature of the hive is at a higher point during the season of comb-building, than at any other time. The naked hand placed upon the glass will be sufficient to convince any one of the fact, without the aid of a thermometer. They have the power of increasing or concentrating their own animal heat whenever it is necessary for the purposes just specified.

A colony or swarm of bees is composed of the queen, the worker, and the drone. Each has distinct offices to fulfil, and all are important in their bearing upon the welfare of the society, or body politic which they form. They never revolt. They remain true to their organization, until death separates them.

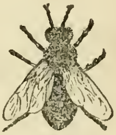
The Queen.—The queen is the mother of the whole family of which she by instinct and by common consent, is constituted the head. She is distinguished from the other bees by her shape, color, and size. She is larger than the common worker, and longer even than the drone, and different in her proportions from either. The rings of the abdomen are less fully developed, or less visible. She has a more delicate structure than the drone, is more wasp-like in her appearance, with an abdomen more nicely tapered, or pointed at its extremity. She is of a darker color upon the back, especially upon the back part of the abdomen, than either the worker or drone. Upon the lower side of the abdomen she presents a yellowish, or semi-orange appearance. Her wings, when compared with those of the worker or drone, are wider, stouter, and shorter, in proportion to the length of her body. She is seldom on the wing, and is seldom seen except at the time of swarming, and when she comes forth in the open air to be impregnated by the males. She lays all the eggs from which the increase of the colony proceeds. The number of eggs which she deposits in the cells during a single season is truly astonishing, amounting to hundreds and even thousands in a single day, as may be witnessed by those who use observatory hives.



Queen.



Drone.



Worker.

THE DRONE.—The drone, like the queen and worker, is appropriately named. He is larger, stouter and more bulky than the worker, and not so long as the queen. The drones are the only males in the hive. They are hatched from April to July, and usually number from three to four hundred in a single colony. They are literally "gentlemen of leisure." They add nothing to the stores of the family, perform no labor, and do not even gather their own food, but live on the labors of others. They seem designed merely for propagation. Their days are very limited. When the work of impregnating the queen is performed for the following season, they are destroyed by the workers, who seem intent on carrying out the principle that he that will not work shall not eat. This general slaughter of drones usually takes place during the month of August, sometimes a little earlier. Rarely do they live longer than four months. None of them are allowed to survive the winter.

The Worker.—The workers are so called because they perform all the labor of the colony. They seem to have no other propensity except to labor in various ways and to accumulate stores for the subsistence of the family; and such is their propensity in this direction, that they often accumulate much more than is found needful for their own supplies, and are able and, I doubt not, are willing to furnish a liberal quantum of honey to their keeper to defray their necessary expenses, such as house-rent and the time which is bestowed upon them. They uniformly pay better for a good tenement than for a poor one. They like to work to advantage, and never like to be in debt, and if they are, it is not so much their fault as that of the keeper, who fails to place them in favorable circumstances, in which they can give full scope to their natural instincts. Their industry is proverbial. Some are employed during the working season as sentinels, some in comb-building, some in gathering and storing up honey, some in nursing or feeding the young, some in pasting over, mason-like, the crevices and joints of the hive, some in removing from the hive offending substances, and others, like a kind of body guard, seem to bestow special attention upon the queen. Whether the principle of the division of labor is strictly adhered to by them, or separate classes of bees perform constantly the same kind of labor, or whether they are employed alternately or promiscuously in different departments of labor, is a point which is not satisfactorily settled by any observations or experiments which have hitherto been made. Their number varies in different swarms, from twelve to forty thousand, according to circumstances, the size of the hive or the degree of prosperity which they enjoy. They are styled neuters, but are really females of a dwarfish size. They are imperfectly developed in size, and their female organs and propensities are in like manner imperfectly developed, except in some few instances. In consequence of a more perfect development than is usual, they have been known to lay drone eggs. That they are really females and not mongrels is proved by the fact that when a queen is lost or removed from the hive in the hatching season, a newly laid worker egg is taken from the cell in which it has been deposited and transferred into a queen cell, which is pre-prepared for the purpose, and by a peculiar feed called royal jelly it becomes a perfectly developed queen or mother.

Bee Glue.—There is a great disposition among bees to coat over every part of the interior of the hive. This is done chiefly by what is called bee glue. This is not a secretion from the bee, as some have supposed. It is a substance which is gathered or scraped from the bark and leaves of trees. It is used as a kind of cement in attaching the comb to the hive, and in closing up the joints and crevices of the hive, and for general coating purposes. When dry, it is much stiffer and harder than the wax of which the comb is built, and well adapted to the purpose for which it is employed.

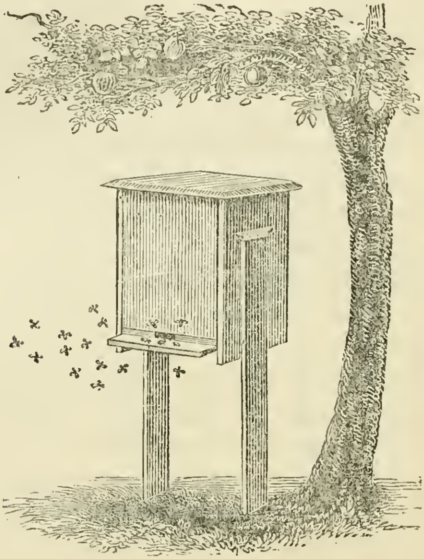
Wax.—This is a secretion from the bee, which exudes from the body like a thick sort of perspiration, between the rings of the abdomen, which seem to be connected by so many joints or hinges. This is employed in the construction of the comb. As the instruments are very small which are used by the bees, the wax must be very warm or soft in order to be wrought by them. Here we see why a small swarm of bees never prosper in a very large hive. Not because they are discouraged by the extent of space to be filled, but because they are unable by clustering together to get up (" steam ") a sufficient degree of animal heat in order to mould the wax.

Honey.—This is the proper and only food of the mature bees at all seasons of the year. The queen, the drone and the worker subsist upon it. It is collected from a very great variety of blossoms. I shall not attempt to enumerate all the sources from which it is gathered. Early in spring the bees work upon the willows and alders which are found in our swamps, more for the pollen which is found upon them than for the quantity of honey which they contain. Next they resort to the cherry-tree, the pear-tree, and the apple-tree blossoms: subsequently to the white clover. This usually furnishes the greatest supply of honey, more, I am inclined to think, taking one season with another, than all other things in the climate of New England. They rarely, if ever, work upon red clover, from the fact that their proboscis is not of sufficient length to reach the honey which is contained in it. Later in the season they resort to fields of buckwheat. This furnishes honey in considerable quantities, but it is inferior in quality and flavor to that which is gathered from the white clover. It however answers well for their winter stores. It helps many late swarms to survive the winter. Buckwheat should always be sown in the vicinity where bees are kept. The idea is extensively prevalent that bees have the power in some way to *manufacture* honey. This is an error. They have no laboratory for this purpose, and no peculiar process by which the work is done. If it were so they would bring all the materials which they employ to a given standard; but such is not the fact. Apple-tree blossom honey is one thing, white clover honey is another, buckwheat honey is another, southern or Cuba honey, which is gathered from the sugar plantations, is quite another, and sugar sirup, which is sometimes fed to bees and is transferred by them, the liquid part of which at length evaporates and leaves the sugar in a candied state in the cell (thus spoiling the cells) is still another. Bees are merely gatherers of honey, which various blossoms spontaneously produce. The honey is their food and they gather it. They will transfer to their cells any kind of sweet which you choose to give them, and large quantities of it, but no chemical change takes place in the article while the bees have it in their possession, or during the act of transportation. In one minute, and frequently in less time than this, the material which is gathered is deposited in the cell, and is substantially the same thing after the transportation as before. But more of this in another place.

BEE-BREAD OR POLLEN.—This is conveyed to the hive from various flowers upon the thighs of the bees, and is often stored up in considerable quantities beyond what is needful for present use. There has been much diversity of opinion as to the particular use which is made of this article. It is at length settled by satisfactory experiments, that the only use which is made of it, is in feeding or rearing their young while in the larvæ or worm state; that what is stored up is for use early in the spring, when the hatching of the young commences, before fresh pollen can be gathered abroad. Mature bees do not subsist upon it, but often die of starvation with a plenty of it in the hive.

BEE-HOUSE.—The bee-house which was once thought to be essential to bee-culture, is found, in various respects, to operate unfavorably, and all the advantages which it affords can be secured much better in some other way. Bees should never be exposed to the direct rays of the sun except in the morning and at evening. The intense heat of the sun often causes them to lie in a cluster upon the outside of the hive or to melt down—a circumstance which proves fatal to them. The bee-house, if properly constructed, may afford protection from the injurious and excessive heat of the sun; but, as it is usually constructed, it is too narrow even for this. Being open on one side, as it usually is, with a southern exposure, the sun acts with all its intensity upon the bees (or hive) in spite of the bee-house. The bee-house attracts the sun in winter, and so much warmth is occasioned that the bees are induced to leave the hive, and are soon chilled. They fall upon the snow, and, being unable to rise, soon die. Great numbers are lost from this cause alone, when they would have remained in the hive had it not been for the accumulated and reflected heat of the sun occasioned by the presence of the bee-house. Its protection, in winter, against the cold, the bees do not need. It is impossible to freeze them in our climate, unless the swarm is quite small; in that case the probability is they will perish from some other cause. Those swarms which lie the most dormant in winter, (that is, occupy the coldest place,) eat the least, come out brightest in the spring, and increase and prosper most during the following summer. The kind of protection from the excessive heat of the sun, which the bees need, will be spoken of when I come to treat of the bee-hive. The bee-house furnishes the best kind of protection for ants, millers, bugs, worms, and every kind of insect which delights to collect in or about a bee-hive. Here they find convenient lodging places. They are attracted thither by the scent or delicious contents of the hive, and they often collect there in great numbers. The miller, especially, from which the bee-moth proceeds,—the greatest enemy against which the bees have to contend, and which has made such havoc with many swarms throughout New England, —may usually be found lurking or secreted, during the day, about the roof or platform upon which the bees stand, ready to go forth at night, as it is accustomed to do, to perform its work of destruction by laying its eggs in or about the hive. Many swarms have no doubt been lost which might have lived and done well, had it not been for the depredations of those insects which collect in and about the bee-house. Ordinarily it is a "cage of all manner of unclean birds." It should, therefore, be dispensed with entirely. There is a more excellent way. The open air is far preferable. This will appear when we come to speak particularly of the bee-hive.

HIVES.—Very few bee-keepers have felt, adequately, the importance of constructing a good hive. I refer, at present, not so much to the plan of construction as to the materials used and the workmanship which has been employed. Too often any kind of box which would contain a hen and chickens, (and perhaps very suitable for that purpose,) has been used for a bee-hive. In behalf of the bees, I utterly protest against all such "fixings." The idea that any thing in which bees will remain and labor, will answer for a bee-hive, is utterly futile and ruinous in its bearing upon bee culture. A bee-hive requires the best stock and the best workmanship which it is possible to obtain. It should be made for exposure to the weather so as to constitute hive and house. A bee-house is to be entirely dispensed with, for reasons already assigned. It should be water-proof and air-tight. Every joint which communicates with the interior of the hive, should be protected by tongue and groove, or their equivalents. No chink or crack which allows the warmth of the hive or the animal heat of the bees to escape, is to be tolerated for a moment, unless we intend to give the bee-moth possession of the interior by allowing it to deposit its eggs in these crevices, where they will hatch and multiply until they outnumber and destroy the bees, as they often do. The joint which usually exists about the base of the hive, is to be protected as effectually and as thoroughly as any upright joint. I know of but one hive which is constructed in this thorough manner, and I know of but one hive which affords any real protection against the encroachments of the bee-moth. This is



THE

PROTECTIVE BEE-HIVE.

This will be found, in its practical results, to be a very different thing from the construction of a moth-cage, trap, drawer, or "hot-house," as if the great object of the bee keeper was to raise such creatures for market, or was extremely anxious to furnish them a lurking place and a snug warm nest, or was desirous to induce them to stay about his apiary; and a very different thing from placing a hive over a wire screen, (with a moth drawer beneath!) which wire net-work furnishes all the opportunity for the deposit of eggs, which the bee-moth could desire. All such "fixings," which furnish a place for the deposit and hatching of eggs, must gratify the bee-moth exceedingly. It could ask or desire nothing better, and if it had the power, I think it would be disposed to remunerate the bee keeper amply for such an arrangement. I shall not, in this place, go into the merit or demerit of different plans of construction, but would say, that whatever particular plan is adopted, the hive should be constructed in the thorough manner which has been alluded to above.

Location.—A bee-hive should never be exposed to the direct rays of the sun during the summer season, and in the winter it is to a certain extent injurious, especially if the hive is unpainted or is of a dark color. A dark colored hive, if it is painted, or one which is the color of the wood, absorbs the rays of the sun and causes too much heat in the hive. The high temperature which is thus produced, causes the bees to cluster upon the outside of the hive in summer, and not unfrequently results in what is called "melting down," which is nothing more nor less than the soft state of the wax or comb, which falls by its own weight when the cells are filled with honey. A bee-hive should be placed in the open air and in the shade. The best place is under the south half of a tree, where, from 9 o'clock, A. M., until 4 o'clock, P. M., it will be shaded or protected from the direct rays of the sun. There it should remain during the entire year. Nothing will be gained by removing the hive to the attic, the cellar, or a dark room, in winter. I have tried all these experiments to my entire satisfaction. More bees will be lost by such a transfer, than by permitting them to remain in the open air.

Swarming.—Divers opinions have been entertained relative to the theory and expediency of swarming, and these different opinions have led to very different methods of bee management. One virtually believing that the propensity of the bee to swarm, should not be gratified, or that the Creator (thus impeaching His wisdom) has given them a wrong bias, has devised some method to interrupt or prevent this "wild freak of nature." Another, fearing that the bees—poor ignorant creatures—do not understand the best method of conducting this process, or that they will mistake the best time of attending to the matter, has undertaken to hasten the process by some "hot bed" arrangement, or volunteered to give them a few elementary lessons, relative to a matter which he understands [query] much better than they. In the view of one, the bees swarm too often. In the view of the other, they do not swarm often enough. Both of these cannot be right, perhaps neither of them. I take the liberty here to suggest, that it is barely possible the bees understand the thing, and their Creator also, nearly as well as those who set themselves up as teachers in this matter. The first, or non-swarming plan, is about as wise and profitable as it would be for a dairy-man to prevent the natural increase of his stock, by keeping on his farm perpetually, a parcel of farrow cows. The other, or artificial swarming, is about as wise and salutary an interference, as it would be for a boy to catch the old hen and squeeze her because she does not lay soon enough. There has been too much officious meddling in this matter. Between these opposite extremes, or with Scylla on the one hand, and Charybdis on the other, we find the bees occupying the golden mean, where truth and safety dwell, confident, it would seem, in the position which they have taken, unchanged in this indomitable propensity, and intent upon giving to their keeper a "windfall," as soon as they are able with all their industry to furnish it to him. Swarming is a natural process. It cannot, to any great extent, be interfered with, and the results prove permanently beneficial to the bee keeper. The theory of swarming is this. The queen lays eggs enough ordinarily, in a common sized hive, during the hatching season, to make up for the losses which the swarm sustains in various ways, and to increase the number of bees to such an extent, that a colony can be spared or sent off, which shall constitute a new organization. If the hive is double the ordinary size, and the swarm which occupies it is double also, its losses at the same time are double. If the hive is treble the ordinary size, and the swarm is trebled also, its losses are treble. The queen lays just about eggs enough during the season, to make up for the losses which are sustained by a swarm which is treble the ordinary size. There is no increase in numbers beyond the wants of the household. No colony is sent off, because none can be spared. They remain stationary for a time, or from year to year, although strong and vigorous. At length the queen becomes less fertile as she advances in age. Fewer bees are raised. Their losses are not made good by the increase. They gradually diminish in number, dwindle and die. Bees are to be placed in a hive of suitable dimensions, which contains about one cubic foot, with an arrangement for the deposit of surplus honey, where full scope is given to their swarming propensities, if the keeper is to receive from them the greatest profits which they are capable of furnishing. The old queen leaves the hive with the first swarm, ordinarily before the young one is hatched, yet about the time she is hatched.

Hiving.—The bee keeper, as a preparation for hiving his bees, should walk around among them while they are in the act of swarming. As a consequence his presence will be more acceptable to them when he comes to handle them for the purpose of putting them into the hive. During the whole time he should move with the utmost gentleness and deliberation. His moderation should be known to the bees. He should make no sudden or violent motions, which may serve to enrage them. The hive may be set over them, after they have been placed—with the limb upon which they have clustered—upon a cloth which is spread upon the ground, or they may be shaken or jarred from the limb into the hive when inverted, or they may be brushed into the hive gently, by a soft wing or dust brush, as circumstances may dictate. When bees are put into a hive inverted, it should be turned back very gently or slowly, lest the bees should be removed or poured out. Always place the hive in the shade, or protect it from the direct rays of the sun, while the bees are taking possession of it. About sunset remove it to the place where it is to stand permanently.

THE DAIRY.

ESSEX.

Statement of Mrs. Paul Titcomb.

Cheese.—I offer for inspection, four new milk cheeses, the like size and quality of thirty-six made in the months of July and August.

The evening milk is strained into a tin tub and rennet added immediately ; the rennet should be of sufficient strength to form the curd in thirty minutes, but it should not be broken up under one hour or more. After being carefully broken, it is dipped off and left to drain until morning. The process is repeated with the morning's milk. After that is broken, the evening's curd is sliced into it; the whole is then scalded with whey dipped from it; then thoroughly drain, chop fine, salt and press twenty-four hours.

They are dried in a perfectly dark room, turned and rubbed daily. Late in the fall they are removed to a cool cellar, packed in straw, and occasionally rubbed and repacked.

BYFIELD, September 30, 1857.

WORCESTER NORTH.

Statement of George Miles.

CHEESE.—I offer two lots of cheese; one common, the other sage. We make but one cheese per day. The night's milk is strained into pans and the cream taken off in the morning. The milk is then warmed to blood heat, and added to the morning's milk with the cream returned; then add rennet enough to form the curd in thirty or forty minutes. When the whey is sufficiently drained from the curd by a gentle pressure, it is cut with knives to the size of dice and salted with about one pound of salt to twenty-five of curd. It is then submitted to the press for two days with several turnings, then covered, dressed and turned daily until cured.

For sage cheese, the juice of green sage, with some of that expressed from pounded corn-blades and is added to one-half of the milk when set for cheese.

HAMPSHIRE.

Statement of Mrs. Stoughton D. Crocker.

BUTTER.—The milk is strained into tin pans, set in a cool place, left to stand from one to two days, or longer according to temperature. The cream is taken off as free as possible from milk, and is stirred occasionally until it is churned. The butter is then rinsed with cold water, salted, worked twice and formed into lumps.

SUNDERLAND, November 15, 1857.

Statement of Mrs. Simeon Clark.

The sample of ten pounds was made from a dairy of four cows. The milk was set in tin pans, from thirty-six to forty-eight hours. The cream is put in tin pails, stirred occasionally, and churned twice a week. The buttermilk is thoroughly worked out, salt applied at the rate of one ounce to the pound, and the butter, after standing from twelve to twenty-four hours, is again worked over and lumped for market or family use.

AMHERST, November 15, 1857.

FRANKLIN.

From the Report of the Committee.

In several cases no statement of the manner of keeping the cows was presented, which is necessary in order to conform to the rules of the society and to be entitled to a premium.

The committee take great pleasure in saying, that they believe the dairy-women of Franklin County can produce as good butter and cheese as those of any other section of the State.

Two things are indispensable to the manufacture of good butter: 1st, good feed for the cows that furnish the cream: 2d, perfect cleanliness in every thing connected with its manufacture. The manner of washing and salting is important. Great care should be taken to cleanse the butter as soon as churned, from all particles of buttermilk. The finest dairies in western New York are made where they have the best facilities for the use of pure spring water. Butter should be salted with the best of ground rock salt, so that the salt should all dissolve and leave a sweet flavor and a pickle as pure as spring water. Butter made in this way will keep through the year without souring, and need not become frowy if kept in a clean cellar, excluded from the air.

Your committee feel great delicacy in presuming to advise or instruct the staid mothers and fair daughters of Franklin, in the science of making good butter. The only apology they can offer, is a desire to promote the interest of the manufacturers, and the benefit of the consumers.

ZEBINA L. RAYMOND, *Chairman.*

BERKSHIRE.

From the Report of the Committee.

BUTTER AND BREAD.—We must decide upon certain qualities, which should be indispensable to insure a prize for butter.

The first requisite is cleanliness. In the language of another, any suspicion of unfaithfulness here, cloys the appetite at once, and makes one perfectly willing to eat his bread alone.

Nearly allied to this is the absence of all unpleasant taste in butter. Many housewives, who perhaps are not justly chargeable with want of neatness, permit this article of manufacture to go from their hands, intermixed with substances entirely foreign to the pure article. Salt is one of them—and though necessary in certain proportions, it will hardly do to adopt the principle that there cannot be too much of a good thing.

Butter seems to possess in a remarkable degree, the power of appropriating to itself the flavor of substances with which it is in near contact.

We believe that one grand defect in making butter is, that the cream is kept too long before being churned.

Another quality is color and density. Common consent declares the color should be yellow. It is granted that this is not wholly within the dairy-woman's power, but if she has a husband, and knows how to manage *him*, she may not find it difficult to induce him to keep only such cows, as shall by the aid of her hands produce an article which shall be as pleasing to the eye, as it is tempting to the appetite.

Your committee entered upon the duty assigned them, with much diffidence, well knowing that to treat upon any point so connected with the good housewife's reputation, as the making of bread and butter, must be a matter of great delicacy, and however justly might be the awards, dissatisfaction would undoubtedly occur, yet in the discharge of their duty, they can safely say, they have been actuated by no partial considerations.

HERMAN L. BATES, *Chairman.*

FRUITS AND FLOWERS.

ESSEX.

From the Report of the Committee on Fruits.

In arranging the list of fruits for which premiums were offered, the object was to induce the farmers to cultivate the best standard varieties, those particularly well adapted for culture in our county. To this list we would hereafter recommend some other varieties, which were accidentally omitted. It is certainly good policy to cultivate the best sort of apples, in preference to many indifferent ones that have been, and are still raised in our county. The Hubbardston Nonesuch, Minister, Danvers Winter Sweet, Seaver's Sweet, Porter, Rhode Island Greening and Roxbury Russet are certainly preferable to the York Russet or Cat Head, Blue Pearmain, and some others with local names and indifferent fruit. In our list of apples for cultivation, we did not include Newtown Pippen, Esopus Spitzenberg, nor Williams' Early, from the fact that the first two, excellent as they are at the South, are indifferent in our soil and locality, and the last named, requiring deep soils, high manuring and the best garden culture, to produce good marketable fruit. In pears, the selection is more difficult than in apples; many sorts producing well in our sheltered gardens, do not flourish in the open country, such as Easter Beurré, Marie Louise, Long Green and Broca's Bergamotte. Then again other varieties that fruit well upon strong land with a clay bottom, are almost worthless upon a light, dry, sandy loam, and others again are destitute of flavor upon moist, retentive soil. In the cultivation of this fruit, we would recommend the fine American Seedlings; they are generally hardy and of thrifty growth. The following descriptive catalogue of many of these sorts we append to this Report:—

Lewis.—This fruit is of a medium size, a great and constant bearer. In eating from November to January. Originated in Roxbury. It requires strong and rather moist land. A fine, melting pear.

Lawrence.—This pear is of the first quality; is of good size; origin, Flushing, Long Island, N. Y.; it produces fine crops; ripens from October to January.

Heathcote.—Originated on the farm of Gov. Gore, in Waltham, Mass.; without being always first-rate, is still a fine pear; of medium size; bears well, not greatly; ripens in September.

Cushing.—Origin, Hingham, Mass. This is a fine fruit; above medium size; produces well; identical with the "Hannas" of Boston; ripens in almost all soils, resembling in this peculiarity the Bartlett.

Seckel.—A pear of the richest flavor of any variety known. It is of small size; the tree is healthy, with a short, compact growth; origin, near Philadelphia; the fruit grows larger when worked upon hardy old trees, such as the Windsor, Pound, &c. This fruit sells well in all the markets of our country; it ripens from October to December.

Buffum.—Native of Rhode Island; a fine orchard fruit; it bears greatly, and is of a strong, upright growth; a handsome and salable fruit of medium size; ripens in September and October.

Blaker's Meadow.—This fruit, said to have been found in a meadow in Pennsylvania, is one of the most thrifty and handsome formed trees; an excellent stock for grafting. We once raised a fine lot of seedling trees from this fruit. The fruit is generally good, not first-rate; a prodigious bearer; on a light, warm soil, it is often rich, hence it has been called at the South, the large Seckel; fruit below medium size; ripens in November.

Wilkinson.—This sugary pear, particularly in strong and rather moist land, originated in Rhode Island. It is an excellent fall fruit, of large medium size, coming between the autumn and winter pears; an annual bearer; always ripens, never rotting at the core.

Dearborn's Seedling.—A fine early pear; origin, Boston; bears well, not greatly; it succeeds the Bloodgood, and precedes the Bartlett in ripening. The growth of the tree is handsome and thrifty; fruit rather larger than the Seckel.

Bloodgood.—This fruit we consider when grown upon a warm and rich loam, to be the best early pear for cultivation in this vicinity. This and the above are superior to the Jargonelle, Franc Real, Madaleine, and English Red Cheek; fruit rather above medium size, and like most early pears, should be taken off and ripened in the house; in eating early in August.

FULTON.—This fruit originated on a farm in Topsham, Me., and is a hardy tree, producing abundant crops; the fruit is of a Bergamotte or apple-pear form, rather larger than the Seckel; a much finer fruit than the old English Bergamotte; it should be gathered in September and ripened in the house, when it will assume a fine, yellow russet color, with a sprightly flavor.

WASHINGTON.—This early fall fruit, second only to the Seckel in flavor, was first grown on a farm in Delaware; producing a beautifully spotted medium sized fruit, sweet and juicy; considered in Philadelphia one of the best early fall pears we possess.

TYSON.—This accidental seedling, found in a hedge near Philadelphia, is a fine fruit, although some years in coming into bearing; fruit medium size; flesh melting; ripens in August.

WINTER CROSS.—This new winter fruit, origin Newburyport, is said to be a fine melting pear. We have never seen it under cultivation, but learn that it promises to be a fine market fruit; good bearer; medium size; in eating from December to January.

ANDREWS.—This favorite pear, resembling in form the Louise Bonne de Jersey, is more sugary and melting; not so vinous in flavor as that variety; originated in Dorchester, Mass. It is an annual bearer; tree hardy; fruit rather large; ripening early in September.

DIX.—This fine, large and high-flavored pear originated in or near Boston; is, when well grown in strong land, generally good, but with us in warm sandy loam, is inclined to blast. In 1848 it cracked badly in our grounds. The tree is handsome and healthy, but is a long time in coming into bearing; the fruit commands a high price in the markets; ripe in October and November.

PETRE.—The original tree was found in the grounds of the old Botanic Garden in Philadelphia. The fruit is about the size of the Washington, and resembles the Cushing in flavor; a good bearer, ripe from October to November.

Among the large collection of pears which have, from time to time, been introduced from various countries, only a small proportion, comparatively, have been found of good quality in our country; it is therefore difficult to decide what are the best on the whole for general culture here; a variety may be called first-rate in our country, and second, or third rate in Europe, and *vice versa.*

The Bartlett, in England called "Williams' Bon Chretien," is classed in their books as second rate. We consider it—taking into consideration its productiveness, accommodating itself to almost all soils, as well as its quality—first-rate. The Beurré d' Aremberg there is first-rate, but with us—from its uncertainty in ripening and bearing—we should not so consider it, but should infinitely prefer such winter pears as the Lawrence and Winter Nelis, as giving better results.

From the list of foreign pears we should select the following: For an early fruit, Rostiezer, and for the fall variety, the Bartlett, Belle Lucrative, Beurré Bosc, Beurré d'Anjou, Bezi de la Motte, Louis Bonne de Jersey, Golden Beurré, Beurré Clairgeau, Thompson, Duchesse d'Angoulême, Beurré Diel and Urbaniste; and for winter fruit, the Winter Nelis, Glout Morceau, and Vicar of Winkfield; and for cooking pears, Catillac, Rushmore's Bon Chretien, Chelmsford, Pound, and Black Pear of Worcester.

Regarding dwarf pears, the inquiry is often made, "What do you think of the quince root for pear culture?" From our own observation, together with some experience, we should say with Downing, "that the dwarf pears belong to the small garden of the amateur, rather than to the orchardist, or to him who desires to have regularly large crops and long-lived trees." The pear upon the quince root requires more care, than upon its own stock; the Duchesse d'Angoulême is the only one we have known that ordinarily does better upon the quince. The quince root cannot be depended upon for many years; the winter of 1853, '54 was disastrous to dwarf pears in many sections of our country; the few who still advocate this culture advise "mulching all the trees, especially all those in an exposed situation before winter." This course for our farmers would, as is said of the upland culture of the cranberry, "cost more than it would come to." A nurseryman of Long Island, some years since, commended highly the raising of dwarf pear trees; the same individual, having gained more experience, honestly acknowledges his mistake and publicly recommends the pear stock as highly for permanency and safe returns. The great desideratum we apprehend in the culture of this fine fruit, is for every one to ascertain, by trial, what varieties do best in his soil, and to cultivate to any extent those only.

JOHN M. IVES, *Chairman.*

Letter of N. Page, Jr., to the Secretary.

STRAWBERRY CULTURE.—According to request, I now present a few notes on strawberry culture. My experience has not been very great, but I find it of some value to me, and if those who have less shall be benefited by such items as I may give, they are welcome.

It is not necessary to make any remarks on the use of strawberries, or their value as a market crop, while it is so well known that it requires many thousands of boxes yearly, to supply cities no larger than Salem, or Lawrence. Strawberries may be considered a luxury, but they are a necessity also, and so many are now grown that the poor as well as rich, even in our cities, can enjoy their bowl of strawberries and milk.

The best soil for strawberries is a deep loam, somewhat gravelly, on a gravel or other porous subsoil. Garden soils that have been long tilled, are not so good as newer soils. Worn out fields and old pastures make good strawberry plantations. Those who possess them may select soils perfectly adapted to their wants, but the first question with most is, how to prepare those not so congenial. There is no invariable rule—not any general method even—for inexperienced cultivators to pursue. The true methods of operation will be as various as are the soils to be operated upon; and, again, they will be modified by the extent of our grounds, the varieties we intend to cultivate, &c. But there are some general results to be kept in view, and each cultivator must judge for himself how he can best obtain them.

1. *Clear your grounds of all kinds of weeds and grasses and their seeds.* This may be done before setting the plants, and cannot well be done after. A good way to do this, is to plough in the first crop that starts in spring very deeply, and when the second crop shows itself, harrow in well across the furrows. The third crop may be turned under with a cultivator, and the

fourth should be ploughed in. So continue sprouting and killing through one entire season. Immense numbers of weeds may be destroyed very easily in this way.

2. *Make your soil deep.* Eighteen inches will do well, two feet will do better. One fair crop may be obtained on a soil only eight inches deep if the season is every way favorable, but if you undertake to continue that mode of culture, you will become fully satisfied in three years that "strawberry growing won't pay." Nearly all soils need trenching or subsoil ploughing.

3. *Make the soil sufficiently porous*, that the surface water may drain through and pass off readily, that the roots may penetrate in all directions easily, and that, in the dry season, moisture may come up from the subsoil freely. A strong clay loam may be prepared by thorough under-draining, with a large application of sand, or red loam and coal ashes, well mixed with the soil. Spent tan, meadow muck, and lime are useful on such soils.

4. *Fertilize your soils* with manure rich in potash, soda and lime ; with decayed vegetable matters, as rotted turf, leaf mould, or meadow muck. The soil must furnish silica. Some soils contain enough of these substances to produce good crops for several years without much addition, but they are exceptions. In preparing grass lands they should be ploughed very deeply, and one or two crops may be taken off before setting the plants. Corn is a good crop to precede strawberries. If the ground is free from witch-grass and other troublesome roots, and is not very weedy, the grass sward may be turned under very deeply and smoothly in spring, and the plants can be set the same season. In this case apply per acre, after ploughing, from fifty to eighty bushels of fresh ashes and from three to six casks of lime. Oyster-shell lime is best. Slake the lime with brine strong as salt will make it, or, mix a half-bushel of salt with a cask of lime and slake with water. Slake the lime to a fine powder, not to a paste, or mortar. Spread the lime and ashes and harrow in thoroughly. It is better to do this a week or two before setting the plants. Do not set them until after at least one good soaking rain. A very coarse and poor gravel I made productive by applying strong clay, ploughing in green crops sprinkled with lime, and using ashes as a top-dressing.

Burned clay is good on heavy soil, applied in any way, and roasted turf, pounded fine, is excellent top-dressing for strawberry beds on any soil. Liberal applications of stable manures are recommended by some cultivators, but I do not make much use of them, or other manures containing an excess of ammonia. I have tried glue grounds, (refuse from a glue factory,) trenching in very deeply, and have thus obtained large crops of very fine strawberries; but the prodigious growth of runners and vines caused much labor in clipping and thinning, and by this very excess of growth the ground was soon rendered unproductive for either plants or fruit. Fish compost gave similar results.

5. *Select the best varieties*, not only with reference to the use you intend to make of them, but also to the kind of soil you intend to grow them on. So many "new" and "very superior" sorts have so lately been introduced that it is difficult to make a selection. If we give equal credit to descriptions in the advertisements of the various kinds raised here, or imported from Europe, and buy accordingly, we shall soon find ourselves in possession of at least one hundred and forty "best kinds!" It will be quite as safe and much more profitable, to make plantations of a few good and well tried sorts. I would not discourage any from trying new varieties when they come well recommended, for if one kind more valuable can be obtained in twenty it will pay perhaps to buy twenty kinds to get it. But cultivators who learn with surprise that they can occasionally produce strawberries five inches or more in circumference, need not therefore believe that this or that new variety will bear every year an immense number of berries of the first quality, each half as large as his fist. In selecting varieties not fully tested it is well to remember that pistillate sorts bear much more uniformly than hermaphrodites, and that the more fully the stamens are developed the less likely they are to produce full crops. Very few of the large hermaphrodites bear uniformly and well, and most of the exceedingly large varieties are of that class, or approaching the staminate.

It is not necessary for me to give full descriptions of the different varieties which have been found suitable for market or garden culture, as fruit books and horticultural journals furnish them in abundance, but I will note a few of the peculiarities of some of them.

LARGE EARLY SCARLET.—Produces fair crops every year on any soil where strawberries will grow. It will bear better on poor gravelly hill-sides than any other that I have tried. The plants, singly, do not produce a large number of berries, but they can be grown near together, thus making up the deficiency. It is one of the best and most reliable early market varieties. It is a hermaphrodite, and will bear alone.

HOVEY'S SEEDLING, is a late and very excellent market variety, and yields abundant crops of very large fruit when all things are favorable. It will not bear well on wet or very rich soils, or on poor or dry soils without copious waterings. It is a pistillate variety, and some staminate or hermaphrodite kind must be near to furnish its blossoms with pollen, or it will not bear fruit. Early Scarlet will do, but the Boston Pine may be better, as it blossoms later.

BOSTON PINE needs a deep, rich, and rather moist soil, and plenty of room. It is a large, late and good variety, but is rather uncertain with many cultivators.

JENNEY'S SEEDLING—that which was described as "Jenney's," by Cole, in the *New England Farmer*, vol. 3, but quite different from that described by R. G. Pardee, and sent out by some nursery-men. I shall not now attempt to say who is correct, but will describe the variety which I refer to. The fruit is of medium size, roundish ovate, dark crimson, somewhat acid, with a rich, high flavor, very firm, late, and a superior fruit for market. The plant is a strong grower, very hardy, and very prolific. It requires a deep and rich soil. It is worthless on a poor, dry soil—hence the unfavorable opinion some cultivators have formed of this variety. I have never succeeded in obtaining so large a crop from any other kind, and have no other that will bear carriage so well, or keep so long after being gathered.

MONROE SCARLET, (P.) will bear very large crops in a variety of soils. The fruit is large, but is sour and not high flavored.

MCAVOY'S SUPERIOR, (P.). This is a very fine fruit, about as large as Hovey's Seedling, much more juicy, sweeter when fully ripe, with a fine flavor, but is too soft for a market fruit. It has borne well with me on a deep loam with red loam subsoil, on strong clay loam, and on a coarse, gravelly soil. On the latter I watered the beds two or three times in the dry season. Probably it will not bear so large a crop as Hovey's sometimes does, but it appears to be a more reliable variety.

MOYAMENSING PINE, (P.) has been considered a good market variety, but the quality is inferior to many kinds, nor does it bear particularly well.

ORANGE PROLIFIC, (P.). A large, late and showy variety, but not rich or sweet. It is very prolific.

WALKER'S SEEDLING, (H.) has not proved very productive with me, nor is the fruit of the first quality.

LONGWORTH'S PROLIFIC, (H.) I have not fully tested. Most of the plants which I procured for that variety, proved to be pistillate, although I was assured that they were genuine by a leading nursery-man from whom I obtained them.

PRIMATE. Gives promise of being valuable for market. The fruit is firm, of good size and fine quality.

CORNUCOPIA, (P.) sets a large quantity of fruit deep in the dirt—ripens some large berries and more small ones. It is not a valuable variety.

TRIUMPH, (H.). Early, very large, juicy, good flavor, very productive, but is rather soft for market. The plant is deficient in foliage, and the plants sometimes get scalded by the sun. It requires a rich soil and good care.

There are very many other promising varieties that I have not cultivated, and I can of course give no useful information in regard to them.

6. *Adapt your cultivation to the kind of plants that you select.* Early Scarlet, Jenney's Seedling, and some others may be grown most successfully in beds one and a half or two feet wide, with the plants only six or eight inches apart. Not more than two crops should be taken from the same bed, and usually but one. Soon as the crop is gathered, prepare the ground between the beds and let the runners from each side take root there. Early in the autumn dig in the old beds and thin out the new. In this way, with proper care, full crops may be obtained every year. Hovey's Seedling often yields more fruit the second year. It may be grown in beds or hills. Boston Pine, and nearly all large hermaphrodite kinds produce more and better fruit when grown in hills one foot or more apart, and kept free from runners.

The best general method in field culture is to set the young plants in rows three feet apart. The strong growers, as Jenney's Seedling, Early Scarlet, Boston Pine, McAvoy's Superior, and Primate, may be set two and a half feet apart in the row, but slow growers like Hovey's, should be set from twelve to eighteen inches apart. As they send out runners, place them so that the young plants will fill up a bed twelve or fifteen inches wide. A horse hoe or a cultivator may be used between the beds. For field culture, set strong plants of the last season's growth, in spring. Do not set them too early. May is the best time in this latitude. For gardens, the first of September is quite as suitable.

In buying plants for field or garden culture, it is cheaper to get them of those who will furnish good ones, even if the first cost should be greater. Some dealers send out very good plants, and others exceedingly mean ones. A fair remunerative price should be paid, and good plants always be given. It is essential in our climate, that the vines be protected in winter with straw, salt hay, sea-weed, or some other suitable covering. The fruit should all be gathered, if possible, when the vines are not wet with dew or rain. It should be carefully picked when fairly ripe, as carefully looked over and prepared, and be placed in clean boxes.

It is the custom here to remove the stem and calyx before sending to market. This necessarily breaks the skin, and often bruises the berries, and they lose some of their flavor and do not keep so well. Those who desire their fruit in all its freshness and beauty, should order it with the handles on. It would be but a pleasant task for the daintiest fingers, to prepare so nice a dish for the table, if required. But wherever prepared, it is due to the buyers that it should be done in a nice and cleanly manner. The boxes of fruit should always be carried in some careful way, and not be jumped and jolted to market. A multitude of directions might be given, but all would not supply the want of intelligent care and practical skill in those who perform the labor in the various departments of strawberry culture. And it is here that cultivators find a great difficulty, but it is perhaps not altogether insurmountable.

The amount of the strawberry crop varies according to season, soil, kind and culture, from 600 to 2,400 quarts of prepared fruit per acre. Some small pieces have been said to produce at the rate of 4,000 boxes per acre, exclusive of the alleys, and measured perhaps with the stems on.

A word in regard to profit. I do not think that in Essex county, larger average profits are made in strawberry culture than in the cultivation of many other crops, although great profits are sometimes realized for one or two seasons. Putting the receipts of a full crop sold at good prices, against the expenses of that year, might show an exceedingly large profit, but it should be remembered that it often requires one or two years to prepare the soil, and always one year's cultivation before obtaining a crop, and that after two or three years the crops will continually decrease. When all things are taken into account, the profits will not seem so great, and, indeed, in seven years' culture the balance may be quite on the wrong side of the leger. With a favorable situation, suitable soil, skilful culture, constant care, and a good market, strawberry growing is profitable.

DANVERSPORT, 10 mo., 1, 1857.

From the Report of the Committee.

FLOWERS.—The testimony of Mary Howitt, as sweet a poetess as ever sang, is abundantly sustained by thousands of the highest intellects of the age.

"God might have made the earth bring forth
Enough for great and small;
The oak tree and the cedar tree,
Without a flower at all.
Our outward life requires them not—
Then wherefore had they birth?
To minister delight to man,
To beautify the earth;
To comfort man—to whisper hope
Whene'er his faith is dim,
For whoso careth for the flowers,
Will much more care for him!"

Hear Henry Ward Beecher, one of the few modern preachers who dares appeal to nature and her divine teachings. He speaks not to gladden and encourage the pampered pride of sectarian bigotry, but to cheer, enlighten, and exalt the entire world of humanity—and it hears him gladly. He says: "If there were no indications of the goodness and bounty of God except in flowers, that evidence would be all sufficient—no better evidence of God's high attributes would be needed. God has adopted flowers as symbols to reveal his own nature. A man who lives among flowers is almost in an unconscious state of regeneration."

Your committee invite especial attention to a most serious consideration of the unconsciously regenerating and ennobling influences which the love of flowers and nature exert in forming human character—"first the tender blade, and then the ear, and after that the full corn in the ear." To fresh, unbiased childhood, all the demonstrations of nature, or God in His works, appear peculiarly sublime, beautiful and instructive. The lightning's flash, the thunder's roar, the starry heavens, the flowery mead and the smiling snow-drop, windflower and crocus bursting gladly out from the frost-stricken earth, to greet the first genial sunshine of returning spring—all speak most eloquently of an Omnipotence, not only of power but of love. It comes as unostentatiously and unconsciously home to the souls of children, as the gentle, noiseless dew, the small still voice of ceaseless blessing descends from the smiling heavens.

If, between the All-Father and the unblemished infancy of our race, there was originally the most perfect oneness, confidence and sympathy, how much more may it now exist between Him and the infantile purity of every human being? And if, "As the twig is bent, the tree's inclined;" or in other words, if "The child be father of the man"—how infinitely important are bright flowery homes for modulating childhood! Home! Home as it should be is but another name for heaven and happiness! Earth has no bright, no sunny spot aside the home where the heart and all its aspirations meet. It is the nursery of religion, the most pure and undefiled; and the patriotism which most freely bleeds for "My own, my native land," there first germinates in youthful breasts. To guard and protect our country then against foes without, and the reckless infidelity within, which reveres not God, nor regards the rights of man—fill it not only with abundant supplies for animal wants, but with fragrant flowers and flower-loving children, and they will cherish patriotism and piety quite as reliable in the hour of trial as that manufactured by political or religious sectarianism.

It is almost unappreciable how early the minds of children are capable of receiving impressions. At the early age of six months they usually attempt setting up their own wills and establishing their own "peculiar institutions." This is the great and all important crisis with the child, and especially with the parent, which cannot well mistake for one of pain the angry, vindictive cry, with which the demand is made, and cannot produce the spirit of obedience and submission to parental authority, on which domestic peace and happiness so much depend, but by the infliction of physical pain. In a state of angry passion and uncontrolled temper, the tender infant appears almost a demon, and for the time, seems well to merit the character of being totally depraved; but the decisive and judicious application of "the rod," a small, slender, flexible one to the calves of its fat little legs for instance, till it yields, draws out all the poison, and leaves only an openness to moral suasion and a sweetness of temper which grows with its growth, as the tender plants of the flower bed from which all weeds have been faithfully extracted. This is not said from theoretical, but actual, practical knowledge. Try it, young parents, you who have these little unwhipt budgets of immortality in your arms, ripening to fill your hearts and homes with joy and sunshine, or to make night hideous with the angry, turbulent screechings of spoilt children; and worse than all, who will grow up in society first in tyrannical and unreasonable exactions, first in discord and controversy, and first in all the vices which contaminate the world.

Flowers are the early or infant stage of vegetation, as childhood is of humanity; and children seek them as like seeks like, in natural affinities, or as they seek for dolls and little pets on which to shower their fountains of youthful love.

We would like to see every primary school furnished with grounds, so that both teacher and pupils might have the means of cultivating and enjoying, not the gaudy exotics of hot-house culture, emblems of frail, aristocratic pride, extravagance and folly, but the hardy, ever-enduring, perennial and self-sowing kinds, which should be universal and as free as air, in home and school-house gardens, as they are on mountain tops and in lowest valleys. The early March flowering liver-wort, anemone, snow-flake, crocus and narcissus, should be among them, testifying of the goodness which cheered them on through the winter of their discontent; then might follow a few daffodils, hyacinths, tulips, crown-imperials and such other flowers as might be most readily obtained, not neglecting the faithful, enduring panzas, erysimums and marigolds, which may easily be kept in bloom into December, leaving only January and February flowerless months.

The universality of flowers through earth and ocean, in torrid, temperate and frigid zones, is proof enough of their importance, and hint enough to all who have superfluous means, of producing them, to impart to others without the niggardly regret or fear of seeing one of his favorites blooming in a neighbor's garden, or that of a man poorer than himself. A penurious or stingy flower lover is altogether a misnomer. The presence of one indicates the absence of the other. The monopoly of soil which deprives so many willing hands of the privilege of turning it into productive gardens, is a great hindrance to horticulture and other kindred branches; still there is so much of it free and attainable, that the possession of flower seeds, even by the poorest children, presupposes not only a will but a way also, of finding a sly corner somewhere, in which to make them grow and display their beauty.

Your committee are of the opinion, that this society has succeeded so admirably in encouraging the cultivation of flowers, by the praiseworthy example it set many years ago, of rewarding the most successful exhibitors of them, that it may now judiciously offer gratuities for the most valuable collections of flower seeds presented at its exhibitions, for gratuitous distribution, mutual exchange, or even for sale; and also for the best exhibition and means of destroying insects so injurious to the interests of horticulture. The due encouragement of these additional items may be well assumed by the floral department, if the means of awarding gratuities are but increased in proportion to the greater number of visitors it attracts and dimes it pays into the treasury above others.

These festivals occur but once a year, and as they are for every individual in the county, let their importance and their attractions and innocent amusements be increased as much as possible, by connecting with them every object of interest, so that every man and woman, and every boy and girl, will have good cause to inquire as earnestly for the time of their occurring, as for the coming of Thanksgiving-day; and after they are past to look back upon them as the most delightful and instructive of all their holidays. The more all of us can be made to feel that we have something there to do, and are somehow part, if not parcel, of this great jubilee, the greater will be the good cheer and animation of the occasion. It is no time nor place for exclusiveness, formality, or conventional reserve. The proudest nobility of the world may gladly mingle in such festivals. And, that women, if endowed with common sense and observation, should co-operate with committees on flowers, dairy productions and domestic manufactures, seems not only appropriate but in many respects very desirable. They are not less interested in having such productions of the choicest character, than men; nor are they less prompt and active in the exercise of quick perceptions, good taste and sound judgment, in estimating their true value and merits. For the want of their more active participation in its interests this society suffers essentially, and it is high time that the evils were corrected.

There were, we are sorry to say, contributions of flowers without labels attached to them, and others without full names, which must of course leave some contributors unnoticed and unrewarded. Some fifty varieties of flower seeds for exchange were offered by F. G. Sanborn, of Andover, but as there were no others for which to exchange them, they were mostly distributed gratuitously. The example is worthy of imitation. It might be well to have a department in this and all our agricultural societies, for receiving and exchanging seeds, bulbs, and all elements of floriculture, by which the rarest and most desirable flowers might be widely and cheaply distributed.

We cannot forbear, too, our commendation of the exhibition of insects—some half a dozen cases, containing about 1,500 varieties, either injurious or beneficial to vegetation, having been presented—by which much valuable knowledge may be communicated to the growers of fruits, vegetables and flowers, and to all agriculturists more directly, perhaps, than by any other means. The department of entomology will, it is hoped, receive special encouragement by the society, by liberal premiums, at future exhibitions. The specimens exhibited this year reflected great credit on the patience, ingenuity and scientific research of the contributors.

We would, before closing, suggest to parents who cultivate flowers for the silent, elevating influences which they exert on the minds of their children, that we know of none more desirable for this effect than the early spring blooming ones, some of which we have already named. They spring up from the just opening earth so unexpectedly as often to take children by surprise and fill their hearts with a joy never to be forgotten. Crocuses, of which there are some half a dozen common kinds, may be bought usually as low as six cents a dozen, and at auction much lower, and are hardy and multiply very fast; snowdrops, which are the earliest bloomers, cost a little more, and increase like the crocus, as do also narcissi, jonquils, daffodils, tulips, hyacinths and all the hardy bulbs of the kind, and will, when once in the ground, remain with a little care, increasing perpetually.

EASTMAN SANBORN, *Chairman.*

MIDDLESEX.

Statement by E. W. Bull.

GRAPE CULTURE.—The grape has been cultivated from the earliest ages, and wine was made from it in periods of remotest history. The European grape was derived from the East. Gradually spreading from Syria into Greece, and along the coasts of the Mediterranean, it finally reached even England, where at one time it was much cultivated.

This family of grapes, however, is not hardy enough to endure our severe climate, and it has been considered a capital error on our part, to have endeavored to acclimatize the foreign grape instead of improving our native stock, which being indigenous, and perfectly at home in our variable climate, might be expected to yield in time a grape of good quality and easy of cultivation.

The native grape had indeed yielded several varieties of merit many years since, prominent among which were the Isabella and Catawba, excellent grapes, where the climate permitted them to ripen; but too late for our New England climate except in the most sheltered situations, and uncertain even there.

Under these circumstances it is not surprising that grape culture received little attention with us. Constant efforts indeed were made by enthusiastic amateurs, to overcome the difficulties of climate and season, and not without some success. But this success cost much in time and money, and it is not perhaps too much too say, that it would have cost less to have raised the crop under glass—the amount of crop being considered—than in the open air; and such seems to be the general conclusion in the public mind, for glass structures multiply, while out-door culture of the foreign grape, and even of the Catawba and Isabella, diminish from year to year.

It is unfortunate perhaps, for us, that so much time has been wasted in a wrong direction, but the horticultural mind, not wearied with difficulties, but seeking new expedients, has turned to our indigenous vine, and marked success has already rewarded many intelligent cultivators, who have originated seedlings of merit, hardy and excellent, and marking a new era in grape culture in this country. But it is not my purpose so much to speak of the new sorts of grape which have been bred out of our native stock, as to offer to my friends and neighbors some hints in regard to grape culture, drawn from my own experience, which I hope may be of some service to them, in saving perhaps some time which otherwise they might devote, as I have, to experiments now to some extent made and established. And I shall proceed to speak of soil, aspect, training, pruning, cropping, &c., as briefly as the case will permit.

Soil.—There is some diversity of opinion as to soil. Some contend that a strong, rich soil is the best for the grape. In a hot climate this is probably true, as such a soil would resist drought better than sandy loams, which are generally recommended for the grape. Buchanan, however, in his excellent treatise on the grape, says that the sandy soils are not so good for the grape; the juice is not so rich nor so sweet. He recommends a dry, calcareous loam, with a porous subsoil. English writers of repute recommend a soil of burnt clay, and I have found this to be excellent, but it would be too costly in most cases. Almost any soil, however, will do to grow the grape in, if it can be made mellow, avoiding soils underlaid by a stiff, wet clay, and wet spongy lands. The main requirement in regard to soil is permeability. The grape will flourish in any soil not positively injurious, if its roots can easily penetrate it. Other things being equal, the warmer the soil the better the success, and this leads me to speak of

Aspect.—All writers on the grape, concur in giving the first place to a south aspect. A gentle slope, sheltered from the north and east winds, and on which the sun darts his genial rays during the whole day, warming the earth to a good depth, and bathing the plants in light from morn till night, is undoubtedly the best. In such a situation the plants receive a larger share of light and heat than in any other; and light and heat are the great essentials in the successful culture of the grape. The vine will succeed well, however, in any aspect from east to west, but always the best where the sun warms the earth to the greatest depth; a south-west aspect will be better than a south-east, and a west better than an east, because the sun lays upon it in the latter part of the day, and in the autumn, when the grapes are ripening, this afternoon sun is of great service. We do not, however, always have choice of aspect, but we may cultivate the grape successfully in any aspect, from west to east, preferring first the south, next south-west, next south-east, next west, lastly east.

The soil should be stirred to as great a depth as possible, say two feet; three feet would be still better, but it is not often possible to trench three feet. It is a very good plan to plough the ground with a double Michigan plough, or to follow two or three times in the same furrow, deepening the soil as much as possible. I do not think the soil need be made very rich for our native vines, which seem in this respect, to have a different constitution from the foreign grape; but it will be well to plough in some light rich compost before planting, because it is not so easy to supply it afterward, and it will lighten the soil.

The only substances which seem to be absolutely necessary to the grape, are bone dust and ashes. A peck of bone dust well incorporated with the soil, and half a peck of ashes, will be enough for each vine.

Planting.—Some cultivators prefer plants of two or three years' growth, in order to get the vine soon into a bearing state; but in planting a vineyard, I think well rooted and vigorous plants of one year, are better on the whole, as they are more easily planted, and brought into such shape as the cultivator may desire.

My own practice is, to plant one year old vines which have abundant roots, not caring for the top, which in all cases I cut down to two eyes. Spread the roots out carefully, laying them straight, taking care that they do not cross each other; let the roots be six inches under the surface, but let the crown of the plant be within two inches of the surface of the ground, leaving the earth about the vine a little higher than the adjacent grounds, so that water may not stand about the plant; this is especially necessary where there is a retentive subsoil.

As to planting in the autumn or spring, I think if the soil be dry, the autumn is the best season, as the roots get established in the soil, usually making fibres from the main roots during the first two or three weeks after planting, and they are thus prepared to start early in the spring, getting a good growth before they are pinched by the heat and drought of midsummer; this is a great gain in such soils; but if the soil be heavy and liable to heave with the winter frost, or if water stand upon it in the winter and spring, then I should prefer the latter season, when the advancing warmth promotes the formation of the fibrous roots; and the plant having the whole summer to establish itself, is much more likely to go through the ensuing winter without harm. It is always good husbandry to put an inch or two of leaf mould or chip dirt, about the plants the first winter after planting, to prevent the heaving by frost. After the first winter they are safe.

I have found in my experience that the native vine requires much more room than is usually allowed in vineyard culture. The directions copied from foreign books, although they may be well adapted to the foreign grape, will certainly mislead the cultivator who applies them to our native varieties, some of which make shoots twelve or fifteen feet long in a season.

Buchanan, in his treatise on grape culture, says: "For steep hill-sides, 3½ feet by 4½, or 3 feet by 5, may answer, but for gentle slopes, 3½ feet by 6, is close enough, and for level land, 4 feet by 7." I think the cultivator will find 6 feet by 8 near enough, or if his space is limited, and he desires to realize an early and large crop, let him plant 6 feet by 4, and after five or six years cut away every alternate vine.

The reason for giving the vines this wider space to grow in, will be obvious to the reader, when he recollects how large a space single vines will cover under favorable circumstances, and that there should be a proper balance between the roots and branches, both of which should be as near as possible to what nature designed ; that is to say, should have a good extension, that the vine may be healthy and long lived.

Pruning.—There are various modes of pruning the grape, all of which have value and adaptation to particular circumstances, as covering a certain space, an ornamental espalier, or the production of large bunches of fruit. And this last is an object of some importance, for, other things being equal, the largest and handsomest bunches are the most valuable, often bringing in the market double the price which can be obtained for small bunches.

I shall speak of the renewal, or long cane system, and spur pruning ; either of which, judiciously followed, will give good crops and large bunches, always supposing the kind of grape cultivated will give large bunches, for many kinds of grapes, though of fine quality, cannot be made to give large bunches under any kind of pruning. I should mention, also, that some kinds of grape, as the Clinton Strawberry, and such grapes generally as make long, slender wood, must be laid in long canes upon the espalier to give good crops.

To begin at the beginning, then, we will suppose the vine just planted and cut down to two eyes ; after these two eyes have grown about a foot, pinch the weakest one at the end and train the strongest one to the pole or espalier. If it run away weakly, pinch it occasionally, which will set back the sap and thicken the stem ; it will probably push out lateral shoots, which should always be pinched at the second leaf ; this will prevent the formation of weak, watery shoots, and strengthen the leader. At the end of the season cut back the long shoot to the lower bar of the espalier, which is usually about eighteen inches from the ground, and cut the short one clean back to the old wood, your purpose being to have a single stem for about a half yard from the ground ; but if the grape is trained against a house, and it is desired to lead off the side arms at a greater height, as above a door, &c., then cut off the vine at that height, observing that there must be but one stem from the ground to the point from whence the arms diverge ; and any shoots which come out at the base of the vine, must always be rubbed out, lest they run away with the strength of the vine and rob the upper shoots of the necessary sap.

The second year you will allow two shoots to grow from the top of the vine ; lay them in diagonally on the espalier, pinching them occasionally as before, and if the buds on the main stem push, pinch them at the second leaf as before. I forgot to say that at the fall pruning, all the laterals should be cut clean out. If dry weather ensue, water occasionally at the root, and syringe the foliage occasionally if you have leisure. At the end of the season cut away all the laterals, and lay in the two shoots right and left on the espalier, horizontally, cutting each of them back to a strong bud. Be sure to cut back to a strong bud, for these arms are to be permanent, and it is necessary the wood should be strong and well ripened.

The third year you may take a few bunches, if your vine is strong, but it is better to wait until the fourth year, as the bearing even a few bunches checks the extension of wood. Your side arms will push every eye. Train upright shoots from these horizontal arms at about eighteen inches distance ; this will usually be every alternate bud ; rub out the bud in the interval, all buds, if there be more than one between these upright shoots ; pinch all laterals at the second leaf as before, whether on old wood or new, and pinch the upright shoots when they get to the top of the espalier ; sooner, if they run away weakly.

In the autumn, cut every alternate upright shoot back to one eye, to make new shoots next year for subsequent bearing, and leave the others at full length for bearing, unless they are not strong ; in that case cut them back to a strong bud. It may happen that the side shoots will take several years to fill up the espalier with strong wood ; but do not fail to cut them back at every fall pruning to a strong bud, making sure of getting strong wood, though you get it little by little ; cut away all laterals as before.

You have now got a number of upright shoots for bearing ; every eye will push and probably set fruit, and now, unless you have the firmness to cut out two-thirds of the fruit, you are in danger of over cropping the vine with its first crop. Not more than twenty bunches of fruit should be allowed to remain, and these should be of the largest and best placed. The thinning should be done when the young grapes are as large as young peas; pinch these laterals, now bearing fruit, at four leaves beyond the bunch you leave on; this will generally be the first or second bunch, the largest of course. If the laterals push again, pinch at the second leaf as before. You will train up the alternate shoots, pinching them at the top of the espalier, and also all laterals as before. These are also to be the bearing wood of next year. After the fall of the leaf, prune out all the upright shoots which have borne fruit to one bud, and all laterals from the new shoots which you have trained up for bearing next year.

This is the system known as the renewal system. It is well adapted to the house or the espalier. If applied to vineyard culture, you must have two poles to each vine, (after the third year) cutting out each cane in alternate years.

Spur pruning, however, is better adapted to field culture in our climate, if I may trust my own experience. The vine is not called upon to make so much wood, and after it is well established, any intelligent boy who can handle a knife, can prune the vine as well as a thorough-bred gardener. Train up your vine as before, with a single stem; cut out all laterals at the end of the first year; and cut back the main stem to eighteen inches from the ground; lead up a single stem from the upper bud the next year, tying it to the pole and pinching when it has reached to the top of the pole, which should be six feet high. Pinch all laterals, as in the renewal system, and if the main stem is not strong, cut back to a strong bud.

The next year you will make your spurs; let them be alternate, right and left, and as nearly equidistant as possible. Pinch them in occasionally, and if side shoots push, pinch them at the first leaf. Do not let the spurs grow more than half a yard or two feet long, for you want strong buds at the base of the shoot to bear next year.

At the fall pruning, cut back the lowest spur to three eyes; cut out the second and third spur to one eye each; this brings you to the fourth spur, which is opposite the first; cut this back to three eyes; proceed as before through the whole length of the vine. You will have alternate spurs for fruiting, and the intervening spurs cut back to one eye, to make bearing wood for the next season, when the spurs which have borne this year are to be cut back to one eye, to make new spurs for alternate bearings. A modification of spur pruning, practiced by some grape growers, is to cut back the spur to the strongest bud, without regard to the length of the spur; rubbing out the shoots from the other eyes, except the one at the base of the spur, which is trained for the new wood of the next season, the old spur being cut clean out, at the fall pruning. Well established vines, spur pruned, generally ripen their crops a few days earlier than vines pruned on the renewal system.

The best time of pruning for this latitude is probably the early part of November. If the vine is pruned at that time, the organizable matter which the roots continue to take up until hard frost prevails, changes the wood and the buds, making them to start with more vigor in the succeeding spring, and perhaps increasing, to some extent, the size of the bunch. It is safe, however, to prune at any time after the fall of the leaf until the succeeding spring, avoiding to prune when the wood is frozen, or so late in the spring that the vine will bleed, which would be likely to happen at the beginning of April.

WORCESTER NORTH.

From the Report of the Committee.

FRUIT TREES.*—In the planting of an orchard it is very important that a correct judgment should be exercised in the selection of the spot for its location. For it is not a temporary location, to be easily changed if we find we have made a foolish blunder, but is one for life, and has much to do with success in the matter. It should be shielded as much as possible from the west and north winds. The south-east slope of a hill may be considered a favorable position, and a deep loamy soil the best.

Second, the soil in which the trees are planted should be kept under cultivation for the first four or five years. Thus the ground, being often stirred, is kept light, and the young roots are thereby furnished more readily with air, moisture and nutritious gases, and solutions of substances in the soil, by which the trees are made to acquire a more rapid growth, assume a more thrifty appearance, and become in all respects a better type of what is known as "Young America," than is the case when the land is laid down to grass. The difference is much greater when the orchard stands on the side of a hill, for then the refreshing showers of summer, instead of penetrating the ground to invigorate the languishing roots, are turned off by the hard soil, and wash into the valley below.

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* The following Report and statements were received too late to appear in their appropriate place under the head of Orchards. They are given here on account of the value and importance of their suggestions.

Third, we desire to refer to a matter which is far too much neglected by the farmer, and that is a constant care and attention to the proper training of the trees during their years of infancy and childhood. Early fix in your mind the picture of a perfect tree, in form and proportion, and begin immediately to train every tree in your orchard to the standard of your beau ideal. It will be impossible for you to make every one assume the same type and degree of beauty, for trees, like children, have their peculiar hereditary predispositions, which may not be entirely overcome. But by a suitable watchfulness, every tree can be securely guarded against any palpably vicious development of limbs, which by their straggling character, and by repeatedly crossing each other, form an almost impregnable barrier to sunlight and air, thus materially lessening their future usefulness as fruit bearers if left in this state, and vitally affecting the health of the tree, if, as is often the case, the limbs are cut away after they have attained a large size.

In your leisure moments go forth into your young orchard carefully observing every tree, and whenever you find a shoot coming forth in an improper place, or assuming an improper direction, take your knife and cut it away. Take care of the little faults of your trees while they are young, and they will have no great ones for you to correct, when they attain maturity.

We also wish to make a suggestion in relation to the feasibility of increasing our present number of varieties of apples. It is a practical question whether it is desirable to make the attempt. It seems to us that under the present system very many of our existing varieties will run out, while no provision is made for any addition whatever. Now we think it desirable that some system be adopted whereby the propagating powers of nature, in developing specimens of excellence from the seed, may not be entirely suppressed. Grafting and budding are the works of art, and we are not disposed to underrate their advantages. But we think that the subtle and wonderful powers of nature should also have a chance to operate in the great work of progress and development. For all new varieties in the future, like those in the past, must come of seedlings; and the old saying, that "there is as good fish in the sea as ever was caught," is applicable here. Nursery-men raise trees for the market; they therefore rear such as the community wants, and generally none others, and as the community demands but a few standard varieties, to those varieties they confine their operations. It is to them no paying business to go into an adventurous chase after new ones. The proper class of persons to engage in this enterprise is the farmers; they generally have plenty of land and can do it cheaper and with less inconvenience than any one else. Our plan would be to procure the seeds of fruits, themselves the products of seedlings of good healthy growth, and of an improving state, and plant them. When the stocks are of a suitable size to transplant, make a judicious selection of the number you wish, and arrange them into a small orchard on the land you may appropriate for the purpose. When they come to a bearing condition, it will be apparent if any are of a quality worth perpetuating; you may chance to have a specimen or two of a very superior order. In this case you will give to the world a valuable accession, while to yourself it will be a matter of innocent pride and gratification, besides attaining historical immortality by embalming your name in the christening of the apple. The bearers of worthless fruit can be grafted with any kind desired, and that without losing more than three or four years. Any other means that may be accessible may be availed of for procuring superior specimens not generally known, such as for instance going to orchards lying back in the country, many of which have some specimens of most excellent fruit, but being without a name, are not known beyond their own neighborhood, and if no one takes the trouble to introduce them to society, they will soon be lost to the world.

We offer, in closing, a few miscellaneous reflections.

Fruit trees are now assuming an importance in the community equalled by few products of the soil.

The little care and labor that are usually necessary in the attending growth, and in the gathering of the fruit, the ready sale and remunerating prices of good, merchantable fruits, particularly apples, often render the income of a few acres of land a very desirable and pleasant addition to the profits of the farmer. To be sure, for a year or two past, (in this immediate vicinity at least,) the fruit trees have failed to yield their wonted bounty, a liability incident to almost every crop. But taking a series of years together, an orchard in a well selected place, to which due attention has been paid as to the selection of the kinds of fruit, healthy, hardy stocks, and good healthy bearers; and to which ordinary care has been bestowed on the soil in which they grow, and to those insects, which, in great numbers, are so destructive to fruit and vegetation, we think that no crop will yield a better per cent. profit than apples, peaches and pears.

The time may come when an abundance of supply will result in a great diminution of price, but that time is far distant. And even should it come in our day and generation, no great catastrophe would occur thereby to the farmer, while a most invaluable blessing would be bestowed upon the community. For, may it not be believed, that but few things aside from the actual necessaries of life, would contribute more to enhance the comfort, health and pleasure of the families of our cities and villages, to those particularly in moderate and indigent circumstances, than a supply of good winter fruit, of apples and pears. For who will dare say that there is no social attraction in a bowl of apples when surrounded by a merry band of swains and maidens? and what lover of fruit will deny that the bowl of apples itself does not furnish much of the inspiration? Pardon us, if, in tracing out the moral influence of an apple, we advance a little into the regions of metaphysics.

We are all aware of the potent power of memory to awaken in the breast long forgotten sentiments of goodness, to inspire the halting with energy, the wavering with confidence, the desponding with hope, and the fallen with a redeeming force to arise and walk again the paths of virtue. We all know, too, that law of association, whereby one little forgotten incident revived in the mind, awakens another, and that another, and so on till all the rills of memory combine in one mighty river, and on its current we are borne back through the years of life, till we stand a child again in all the artlessness of being. And then a mother's love, a father's counsel, and a sister's affection, speak to us with a power which no pulpit voice can equal, and roll upon us tides of virtuous emotions, incite resolutions for good, and elevate the soul to those Pisgah heights of moral excellence, from whose lofty summits we view the goodly land of promise.

Now of the thousands of bowls of apples that grace the hearth circles of thousands of humble abodes through the land, how many through the law of association, acting upon and stirring the deep waters of the memory, may prove a messenger of good, to some participant. For how many, at the sight of the dish of ruby cheeks, and the taste of the luscious fruit, would be carried back in memory to the distant homes on the old farms, where, in the simple activities of virtuous, rural life, with its comforts and its joys, the halo of childhood surrounded them, and the gilded skies of youth bended over them, but in which, with adventurous eyes, they fancied they saw the star of fortune move far onward, till it went and stood over some great city or large manufacturing town. And thither they went, there to be taught the old truth, that thousands had learned before them, that "all is not gold that glitters," that the dreams of youth have rarely any counterpart in the realities of mature life; and how many in these particular hard times sigh for the simple comforts of the rural old farm.

Who would not wish, even from motives of simple benevolence, to do something in the way of elevating the race? And when this object lies in the direct line of pecuniary profit, every farmer should be stimulated to exert himself to increase very materially his production of good orchard fruits. Thus might *man* do much, by the cultivation of the apple, to reclaim in the present, and avert from the rising generation, much of that evil which has fallen upon mankind, in consequence of that sad mistake which a certain *woman* is said to have made, in the matter of an apple, in the garden of Eden.

E. F. Bailey, *Chairman.*

Statement of Jabez Fisher.

The "statement" required by the rules of the W. N. A. Society being, as I understand it, chiefly, if not entirely, for the benefit of the public, I propose to include in that statement the history and management of the whole of my central pear orchard, the westerly half only of which is entered for premium. Said half was planted in the spring of 1854. The easterly portion was planted in the spring of 1855 and 1856, and to some extent in 1857, and there are still remaining a few vacancies to be filled. The orchard is intended, eventually, to comprise 1,037 trees, of which one-third are upon pear stocks, and the other two-thirds are upon the quince.

The form in which the trees are set is that known as the modern quincunx, in which each standard tree occupies a corner of an equilateral triangle, the sides of which measure eighteen feet. In the centre of each triangle, (of which there are two to each standard,) at a distance of about ten feet five inches from each other, are placed those upon the quince. This arrangement gives to the trees a more equal distribution over the ground than any other, and secures to each the greatest amount of sunlight and air compatible with the distance at which they are placed one from another. It also allows of horse cultivation in three different directions, a most important aid in the after management. The entire orchard occupies about two and one-third acres. The soil is a strong loam, resting upon a clay bottom, with mica slate underlying at a depth of five to fifteen feet. The soil is one retentive of moisture, and requires drainage.

In the spring of 1854 the land was a clean piece of mowing. I commenced by digging holes five feet in diameter and twenty to twenty-two inches deep. The holes were filled with sods and loam that were thrown out in digging, and enough more was borrowed from the sides to set the trees in. The trees were procured from Hon. M. P. Wilder, of Dorchester, the standards being mostly worth a dollar each, and the dwarfs were imported trees, two years from the bud on the Angers quince. The standards were placed rather high in the ground, though after the soil had settled, some of them proved to be too high, and a few have been lowered. The shape assumed by the roots of some of the trees was such, that the action of the frost has since been to lift them out. The pears on quince I placed so that the junction of the pear with the stock, should be two or three inches below the surface, but after the soil had become settled, the point of junction was sometimes above the surface. I have since endeavored, in planting, to bury the junction four inches deep, after the soil has settled.

The manures used were leached ashes, coalpit bottom, Mapes' improved super-phosphate of lime, and woollen waste; each being used alone and in combination with the others. They were mixed with the soil at the time of setting, and a few rows were left without manure. I have not been able up to the present time to trace the influence of either of these substances with any distinctness.

The cultivation in 1854 was simply once hoeing and afterward pulling the weeds and leaving them on the surface. In 1855, the whole was ploughed and planted with potatoes, with guano and super-phosphate of lime in the hill. In 1856, it was again planted with potatoes, and manured in the hill with horn shavings and leached ashes. The trees received a pailful each of strong liquid manure from the barn cellar. The present season the trees were treated with the same application, and the crop is cucumbers for pickling, manured in the hill. This crop is a very good one for the purpose, as it is not at all an exhausting one, and it admits of ploughing and cultivating a number of times in the early part of the season before planting.

The growth of the trees has been fair throughout the different seasons, the average since the first year having been perhaps, twelve inches of new wood for each year. The best growth was in 1856, when shoots in many cases exceeded four feet in length. The present season gave promise of an equal increase, but when the orchard generally had made from six to ten inches of new wood, the foliage and small twigs became covered with honey dew. This excretion was at first a limpid, watery fluid, having a sweet and slightly sickish taste. It became inspissated in a short time and then appeared much like honey. It attracted thousands of flies, bees, wasps and other insects, that feasted upon it with much avidity. At the same time many of the leaves, especially those upon the new growth, dropped off; all extension ceased, and the remaining leaves and the wood became covered with a black incrustation, and presented altogether the appearance of October. This occurred in the latter part of July and early in August, and but very few of the trees made any attempt at a second growth. The cause of this phenomena is not well understood, though I have some confidence in the assertion that had it been a dry season, it would not have occurred.

The whole growth for the four seasons past not having been quite satisfactory, I am (October) placing around each tree two or three shovelfuls of night soil. This is to be covered by a conical mound of loam about three feet in breadth and one in height, for the triple purpose of covering the manure, securing the trees against the chance of the depredations of mice, and preventing the injurious action of frost, which in heavy soil lacerates the fibrous roots and stunts the tree in its growth. This latter difficulty is almost entirely prevented by thorough draining, and to my mind, at least on my own land, draining is of vastly more value to an orchard by keeping the water out of it during the season of frost, than in the summer, when for the most part the land is dry enough. Before distributing the night soil I strew around each tree half a pound of the scales of protoxide of iron, such as are found around the blacksmith's anvil. Next spring the hillock of loam will be partially levelled, and the manure mixed with the soil.

The object which I have kept in view in pruning thus far, has been mainly to promote wood growth rather than the formation of fruit. For this purpose I generally prune just as the buds are swelling in spring. This I am aware is theoretically the wrong time; directly after the fall of the leaf being usually considered the more appropriate period. I have found, however, that when pruning takes places in autumn or winter, the terminal buds upon which I rely for the extension of the leading shoots, become detached, killed, or so far enfeebled, that they refuse in spring to make any extension, and the second or third bud from the end becomes the extending shoot. By waiting until the buds commence swelling in spring, I am able to select one for the prolongation of new wood, having the most proper position, and at the same time giving promise of vigorous growth. This applies only to the shortening in of the leading shoots. The removal of superfluous limbs should take place in autumn, and the surface of the wound be covered with some preparation to keep out the air. An alcoholic solution of shellac answers the end better than any thing else. Besides this kind of pruning, the object of which is to promote wood growth by keeping up a preponderance of strength in favor of the roots, I at the same time keep an eye to the eventual production of fruit. For this purpose I practise pinching out the ends of the leading shoots after they have made from ten to twelve inches growth. Such an operation, without apparently weakening the tree, causes the wood already made to become ripened, and the buds throughout its length to assume a more decided character and eventually become fruit spurs. This treatment is applicable only to those varieties which are inclined to vigorous woody growth. For some thrifty growing varieties, like the Urbaniste, which show no disposition to fruit, I reserve all pruning to the season of growth, during the latter part of June. This gives the tree a sudden check, and instead of spending its force in making new wood, it applies it rather to the formation of fruit spurs, without which no tree can be fruitful.

Another object gained by continued pruning is to render the tree stocky. That is the size of the trunk becomes large in proportion to its height. Low, stocky trees are more fruitful than those that are tall and spindling, and their first full crop does not break them down or destroy their vigor.

The form which I prefer for pears on quince roots, is what is called half standard. The branches which form the head of the tree leave the main stem at about two feet from the ground. This form gives more ease and facility of cultivation than the pyramid, and is more easily produced and kept up. In pruning standard trees less heading in is required, but the objects are in the main the same, *i. e.* to promote growth and to obtain a proper disposition of the branches.

The trunks of all the trees were washed in the spring of 1856 with a mixture of one pound of potash, one pailful of water, and a shovelful of fresh cow-dung. I intend to wash them again in the spring of 1858, but shall use a strong suds made from soft soap rather than any mixture containing dissolved potash.

The following is a list of the principal varieties with a few observations appended to each, such as are suggested by their appearance at the present time.

Louise Bonne de Jersey, one hundred and five on the quince. A fair grower and an early bearer.

Beurré d'Anjou, twenty-six on pear and forty-two on quince. Grows well on pear, but little on quince, preferring to fruit before it has the ability.

Urbaniste, ten pear, fifty-eight quince. Handsome and free grower on both stocks. Shoots rather slender, with small present promise of fruit.

Beurré Diel, sixty-seven quince. Makes a pretty good stocky growth.

Vicar of Winkfield, eight pear, sixty-two quince. A free, strong grower and a handsome tree on both.

Lawrence, sixteen pear and nine quince. Free but slender growth on pear. Very unpromising on quince.

Flemish Beauty, sixteen pear, forty-three quince. Grows well on both, though on the quince it hesitates a little for a year or two.

Glout Morceau, forty-nine quince. A fine, stocky, handsome tree.

Duchesse d'Angoulême, forty-six quince. Growth only moderate.

Winter Nelis, twenty-five quince. Rather a handsome and more stocky grower than is usual on pear.

Bartlett, twenty-eight pear. Fair growth.

Beurré d'Amanlis, five pear, twenty-two quince. Strong, but straggling and open grower. Fruits early on both stocks, but much finest on quince.

Easter Beurré, twenty-six quince. Grows moderately.

Belle Lucrative, ten pear, ten quince. Fair growth, fruits early on both.

Seckel, seventeen quince. Growth slow. Not promising.

St. Michael, seventeen quince. Moderate grower.

Doyenné Boussock, seven pear, nine quince. Grows pretty well on pear. On quince very poorly.

Doyenné d'Alençon, three pear, six quince. Same as Doyenné Boussock.

Noveau Poiteau. Grows well on quince.

Epine Dumas, quince. Good.

Figue, quince. Very good grower; makes a handsome tree.

Soldat Laboreur, quince. Like the Figue.

Onondaga, pear. Good grower, fine tree and early bearer.

Beurré Langlier. Strong grower on pear.

Buffum, pear. Very fine, strong, upright growth.

Beurré d'Aremburg. Moderate grower on pear.

Marie Louise, pear. Good growth. Weeping head.

Beurré Giffard, quince. Free slender growth with early bearing.

I might enumerate some fifty or sixty more varieties of which there are from one to five specimens each, but further experience is desirable; and indeed of those already specified I may have occasion hereafter to modify my opinions as herein expressed. Three or four seasons' growth will hardly afford the data upon which to approve or condemn a tree, which may be fifty years in coming to its full development.

NORFOLK.

From the Report of the Committee.

Flowers.—Every flower should have beauty of color, or it will need much to redeem it from our ban. We have seen dahlias, full petalled and full quilled, with such a dead, mahogany hue as to repel any thought of admiration, destitute of frarance, or rather having a very offensive one; such an one should not find place in any, much less choice collections.

Many beautiful flowers are inodorous, but a pleasant perfume greatly increases the value of a plant. It is nearly the only pretension of the mignonette, but it makes that unambitious plant a favorite in every parterre. Of two roses, equal in beauty, that which has fragrance is worth incomparably more than that which lacks the quality. Continuance of flowering is an essential quality of a flower. Some bloom and fold themselves up churlishly before people are usually out of their beds, having no indulgence to the infirmities of human nature. A flower, to be loved, must be seen, and we have a high respect for those that can bear the daylight two or three days, the longer the better. Beauty is a fading flower, but a fading flower is not a beauty.

Deficiency of stem is deficiency of value. What can you do with the balsams, but look at them where they grow? No balsam ever reached the honor of a bouquet, any more than a duck-legged man ever reached the honor of enrolment in the Imperial Guard of Bonaparte.

Color, fragrance, durability, and strength of stem are all considerations, and a few choice flowers combine them all. The rose has each in perfection. The beauty of flowers in the garden depends much on the character of the plant that bears it. The plant of the poppy and the herbage of the dahlia are coarse and unseemly, while some are beautiful in themselves, scarce needing the flower that grows upon them.

Your committee rejoice in the manifestation of increasing interest in flower culture. Many beautiful collections were presented that by themselves would excite admiration, and were only lost in the profusion that prevailed around them.

Samuel B. Babcock, *Chairman.*

VEGETABLES.

ESSEX.

From the Report of the Committee.

Your committee are happy to report, that, as far as testimony came to their ears, the exhibition of this year gave universal satisfaction, and was ranked by many as the crowning exhibition of the society in this department. A close and critical examination of the great variety displayed by the live farmers and gardeners of old Essex, has led them, for the most part, to coincide with the general sentiment.

The feature which characterized the exhibition of this year, was the overwhelming display of mammoth squashes. These, we doubt not, added greatly to the "glory" of the exhibition, catching the eye of the crowd as usual, and, it may be, filling the eye of gentlemen of high position, and thus enabling them publicly to compliment us on our fine display. Such are certainly very agreeable results for all parties. But so sudden and so rapid an increase of these monster varieties, appears to indicate something of a mania among our worthy farmers. In the year 1855, five or six of the large varieties were exhibited; in 1856, upwards of a dozen, and at our last exhibition not far from one-half of the space was occupied by huge specimens of the squash tribe. At this rate of increase, for a certainty the society will soon have to make arrangements for the squash exhibition, and make this a special department. However, we rate the common sense and prudent foresight of our worthy farmers too high to anticipate any great injury to our agriculture from this source. The community certainly have a right to expect some aid from the committee to determine the quality of these large varieties. "Are they sweet?" "Are they dry?" "Are they fine grained?" were questions continually asked by the spectators, to which they could obtain answers from no responsible, disinterested party. Nearly all of these monsters sprung from two varieties, specimens of one or both of which were exhibited for the first time at the fair of 1855; we found by inquiry that one of them for table use was utterly worthless, and that the other might at times be passable. This is as might have been anticipated from their size, but if the committee of that year had been enabled by the regulations of the society to test the quality of these and all other new comers, and could thus have reported authoritatively in this matter, would not their report have given a check to this mania? Unless the committee have granted to them in the programme of the society, the right to test the qualities of every new candidate for public favor, what inefficient automata they are? they can merely certify that the articles were new or looked well, but what practical aid do they render the farmer by recommendations resting on such a basis?

As one illustration of the necessity of such disinterested testimony on which the public may rely, a most prolific variety of the gourd family may be instanced, fifty-two of which, averaging seven or eight pounds each, were exhibited as the product of a single seed. Such an extraordinary yield exhibited under the name of squashes, would at once draw the attention of enterprising farmers, and with the general intimation (if they obtained *any* information on the subject) that one person had heard a second person say that a third person had cooked one and found it good; very many would obtain seed, and it may be that in another season hundreds may be giving time, ground and manure, to determine a question that could be decided by the committee most speedily. These gourds came under the notice of your committee, and as the information above mentioned was all the facts that could be obtained in answer to their interrogations, they determined to take the liberty to interrogate the gourds themselves. On doing so, found them to be a bitter, repulsive fruit, certainly utterly worthless, and possibly, like the bottle gourd, more or less poisonous. An additional argument for the end sought, is the fact that the seed of new products issue yearly from the great head of the progressive agriculture of this land, the Patent Office, to determine the merits of which intelligent farmers both need and desire the aid of some responsible, disinterested body. It seems to the chairman, therefore, that if the committee on vegetables have the power conceded to them in the programme, to test, in whatever way they may think proper, the quality of any article on exhibition, an imputation will thus be removed from the practical workings of our exhibitions; the committee will feel that they are not engaged in a mere farce, and their report will be more satisfactory to themselves, and of more interest and value to those into whose hands it may fall.

Before closing this portion of our report, we would dwell for a moment on the instincts of this most interesting family of plants; to him who loves nature beyond her mere pecuniary value, they will amply repay a careful study. We once observed a squash vine, which had extended itself horizontally about ten feet, pass under a pear tree, the lowest branch of which was three and a half feet from the ground; here, without any means of support, it lifted itself nearly vertically towards the tree, until it had almost reached the branch, when gravity proved too powerful for its watery structure, and it fell in an arch to the earth. Not satisfied with this result, it tried a second and third time, with like success as at the first attempt, making three arches, which carried it beyond the tree, when it continued, as before, its horizontal growth. Did not the vine *know* that the tree was above it, and by what means did it know the fact? Becoming specially interested in its instincts, I tested them still farther, by planting stakes a little to the right or left of the extremity of the vine, previously removing all weeds from within reach. In a few hours, in every instance, I found that the runner had turned towards the stake, and soon the tendrils had seized hold of it and had it in fast embrace. Did this indicate a different instinct in plants from that found in animals? With this knowledge of its instincts, the vine advancing over the ground more than a foot in twenty-four hours, having the runner slightly elevated above the surface, with its tendrils with their wonderful instincts stretched out, hungry looking, into space, the unfolding growth at the extremity resembling a reptile's head, and the numerous leaves in orderly arrangement, stretching far behind like a multitude of expanded wings,—it needed but a slight play of the imagination to see before one some wonderful reptile of a geologic age.

As an illustration that a close study of nature, aside from the elevation of character and calling, which sure return she makes the intelligent husbandman, has, also, its practical value, let us here draw an inference. If the squash vine has this sure instinct to detect and seize hold of, and thus support itself by whatever protrudes above the surface of the earth, would it not be well in many localities, to supply the field with stakes, or leave, here and there, stout weeds, that the summer gusts may not prove so injurious to the vines, rending, twisting and turning them, as every farmer knows is apt to be the case when the fruit is in the prime of its setting. The tendril of the squash, in twisting around the object it has seized, forms a most finished spiral spring, which, yielding, graduates into nothing, the effects of a sudden force. The more fully to answer this end, it will oftentimes be found that the spring is compound in its character; in one-half of its length the revolution being to the right, and in the other to the left, and thus the effect of rude force is still better graduated. Truly a wonderful contrivance of the All-wise Creator.

The instinctive knowledge of the tendril office is, in plants, so strong, that we recently noticed an instance in the woodbine, where the tendrils passing over a smooth, perpendicular surface, and consequently being unable otherwise, to secure a hold and support the vine, their ends flattened themselves against the surface, and spreading out into pads, resembling those attached to the feet of a fly, secured quite a firm hold, and thus answered the end of their creation.

Passing from the tendril to the flower, we find in the marrow a fragrance almost equal to the magnolia, a fact of which our farmer girls seem generally to be ignorant. It is a fact, well known to the botanist, that in the squash family all the organs necessary for fertility are not found in the same flower. The centre of the male flower is a single piece, sometimes called by boys "the candle," while in the fertile flower the centre is divided into several parts, the number of which vary slightly in different varieties, and below the flower the miniature squash appears. The unproductive male flowers are long stemmed and are the first to mature. The crossing of squashes when pure seed have been planted, depends on the presence of the male flowers of another variety, within a distance sufficiently near for the wind, or busy, but mischievous bee, to bear the fine dust, which is their product, to the fertile flowers of the pure variety. It will be seen, therefore, that, provided the amateur has nothing to fear from his neighbor's vines, he may raise the seed of any particular kind pure, provided the seed was pure when planted, and he has the patience to trim the other varieties of their male flowers as fast as they appear and before they are developed. It is a mistake to infer that the seed of a squash is pure because the squash itself has all the outward characteristics of purity. The crossing of varieties, as in the apple, pear, and all our fruits, is not in the pulp, but in the seed; and were the squash vine like our trees, perennial, no matter how near other varieties might grow, the fruit would always be constant; but when we plant the seed, be it of squash, apple or pear, then the result of growing it in the vicinity of other varieties, at once shows itself in fruit of all degrees of purity, though the seed planted may all have come from one squash.

Several collections of excellent sweet corn were exhibited by S. A. Merrill, of Salem, and others, but among them all we did not find any specimens of the Black Mexican. Of ten varieties, which we tested the past season, this was decidedly the sweetest. The ear is rather below the average size, and matures somewhat late, the kernels when ripe being of a rich, dark, purple color, but when in the milk but slightly tinged with purple. The Black Mexican is prolific, will bear close planting, and we can confidently recommend it to the gardeners and farmers of Essex.

J. J. H. GREGORY, *Chairman.*

WORCESTER NORTH.

From the Report of the Committee.

No branch of agriculture when successfully prosecuted, pays so large a profit as the cultivation of vegetables; we propose, therefore, in this report, to offer a few thoughts and suggestions connected with their cultivation; and first,

Ploughing.—The object of ploughing is not alone to kill the weeds and grass, nor even to furnish a seed bed of fresh turned soil for planting or sowing, nor any thing that looks merely to the inversion of the sod, but the chief value of ploughing is the preparation it gives the soil for producing vegetation, for giving to the various plants the elements of growth and fruitfulness. Hence the object of the plough is to thoroughly pulverize and loosen the soil, and thus admit a free circulation of air and moisture, which by chemical action, breaks down the strong or mineral portions of the soil, so that they may be the more readily dissolved, and taken up by the roots. In a soil thus ploughed and prepared for yielding its support to vegetable life, plants can appropriate both far and near the nutriment needed for their growth. It is in this way dissolved and ready for their use; not hidden in unbroken clods, or slumbering in an undisturbed subsoil, but awaiting the action of the roots in a friable and penetrable state, when every hungry rootlet sent out to gather nourishment for its parent plant, may find food to satisfy its own hunger, and a ready surplus to gratify its worthy sire. Fineness and depth of soil are requisite also in order to receive the full benefit of the manures applied. It is not fertilizing food in its crude state which assists vegetation, but it must become intimately mixed with, or more properly become a part of the soil in order to produce the best results.

Barnyard manure, especially, seems of little worth, while forming visible layers between the clods of a half ploughed field. It being often dry and coarse it will rather be shunned than sought by the roots and fibres sent out in search of suitable food. If a well prepared soil has any strength or virtue, it will yield readily, and poor land even, when properly prepared, is often more productive than richer soil less perfectly prepared.

By such a preparation the influences of moisture and air have freedom to work, and they are no sluggards in supplying the wants of vegetation.

A deep sandy loam is undoubtedly the most favorable soil for most kinds of vegetables, and yet by proper culture, a liberal crop may be obtained upon those less congenial. The adaptation of the different kinds of manure to the different varieties of vegetables, is a matter worthy of careful investigation and experiment. Liquids, however, for top-dressing, are far preferable to all others.

Selection of Seeds.—In the cultivation of vegetables, great care should be taken in the selection of seed, not merely in obtaining the best varieties, but so far as possible that which had a healthy growth and came to an early maturity the previous year. Those who rely wholly upon our seed growers for their supply will not always get the quality or variety sought for; but if proper care be taken, each man may raise mostly his own, and thereby not only save an item of expense, but determine the age and quality of his seed for himself.

Potatoes.—Doubtless it will be conceded by all that no vegetable has so large a claim upon our attention as the potato, inasmach as none occupy so common a place upon our tables, or is so well adapted to meet the wants of those in poverty and distress. Hence, whatever knowledge human science or practical experience can furnish, either to improve their culture or preserve them from disease, should be cheerfully presented and widely diffused. So general was the disease the past year, coupled with the severity of the winter, that the price of good potatoes reached a point in our maket before unknown. Although the disease has made fearful ravages in many sections the present year, yet the indications are that the crop will be much larger and of better quality than that of the previous year. Had our farmers the certainty of a large and healthy yield, no crop would be so profitable at any thing like present prices. But as no infallible remedy has yet been discovered to protect this valuable vegetable from the fatal disease to which it is now subject, we have only to go forward in the use of such means as science and practical experience may suggest, until the turning of a new leaf in the great book of Providence shall reveal to us either the cause of the disease, or suggest a permanent and effectual remedy.

Squashes.—Few articles raised in the garden exceed in value and importance the squash. It makes the very best of pies, and its place among other vegetables in an old fashioned boiled dish cannot well be spared. The best varieties are the crookneck, marrow and Hubbard; the latter is said to be far superior to either of the others in every respect, for pie or table use. With ordinary success the squash is a profitable crop to raise for market, as the demand is uniformly beyond the supply.

Cabbage.—There is no vegetable in general use so nearly allied to meat as the cabbage. Oxygen, hydrogen and carbon are the constituent elements of most vegetables, but the cabbage adds to them nitrogen, which makes it similar in its composition to flesh; this renders it a more hearty food than other vegetables. That it is a healthy and highly nutritious article of food is indicated by the hardy constitutions of the Dutch and Irish races, who make it a leading article of daily consumption. This vegetable is used in some sections extensively for feeding stock, and is found to be highly valuable. A crop for fodder may be sown broadcast, with no culture except an occasional sprinkling of ashes. It may be secured by mowing, and feeding green.

Cauliflower.—This is regarded by many as the most delicious vegetable of the cabbage kind known. It has a large white head, composed of flower stalks and unexpanded flowers, surrounded with long pale green leaves; the white head only being eaten. The plants should be raised like early cabbage plants, and transplanted in a similar manner; they require a rich soil, and where grown in small quantities in a vegetable garden, the benefit of soap suds on washing days is very apparent; there are several varieties, the best of which is the Early Paris.

Carrots.—Carrots are said to be less used here than in any other country in the world. In France they are considered one of the necessaries of the table, and are particularly prized as an article for soup making. It is a very wholesome vegetable and undoubtedly deserves more notice than it receives, for table use. For stock feeding it is more extensively used, and is considered invaluable. The early short horn is the earliest and best variety for the table; next to this, and the best for winter use is the Altringham. A deep, rich, sandy soil is best adapted to the beet and carrot.

Few vegetables are more palatable than good beets, and they deserve a more frequent visit at our tables than we are accustomed now to give them. The best variety for all seasons of the year is the early turnip.

PUMPKINS.—While we would not discourage the raising of the ordinary field pumpkin for feeding stock, we would earnestly recommend the small sweet variety for pies and table use. Who does not wait with anxious longing for the season of pumpkin pies to return, and with what a keen and hearty relish are they welcomed and devoured; now if you would have your palates tickled with a new and more agreeable sensation, procure the sweet pumpkin, and let the good lady of the house display her skill upon that which nature evidently designed for pumpkin pies.

We should be glad to follow out the list of vegetables on exhibition to-day and speak of each in detail, but the growing length of our report forbids such a reference. In conclusion, we may add, that the present variety and excellence of our vegetables has only been obtained by careful research and persevering effort. Let then the spirit that has animated the past, in this department of agriculture, be applied to the future also; then we may hope that the time will come, when the vegetable gardens that refresh and adorn the rural homes of our land will bear some humble resemblance to that which was planted more than three thousand years ago, amid the bowers and fruits of Paradise.

J. S. BROWN, *Chairman.*

MAPLE SUGAR.

HAMPSHIRE.

Statement of Zebina M. Hunt.

In making maple sugar, I first have all the apparatus clean ; and I have had my boiling arch constructed so that the fire does not come above the sap, when boiling. After gathering the sap it is strained and boiled to sirup, then strained, cooled, and when boiled to sugar I cleanse with the white of an egg and milk.

SUNDERLAND, November 15, 1857.

Statement of H. O. Field.

My maple sugar was made from sap taken from maple trees and boiled to sirup. I then strained, put it in a cask till cold ; again strained and placed it over a slow fire. I added a little sweet milk and saleratus at the rate of a teaspoonful to twenty-five pounds of sugar, and boiled until it would crystalize. It was then taken from the fire, stirred gently, and when it began to crystalize was poured into dry tin dishes.

LEVERETT, November 15, 1857.

Statement of A. Montague.

To make maple sugar, I procure sap from the maple tree in March and April. I collect it in wooden tubs, strain it, boil to sirup, then strain, cool, and settle it. I next cleanse with the white of an egg or eggs ; again strain ; boil until done, and then it is stirred and caked.

SUNDERLAND, November 15, 1857.

ESSAYS.

The Massachusetts Society for the Promotion of Agriculture, propose the following subjects for Prize Essays for 1858. One hundred and fifty dollars for each.

I. An inquiry as to the best breed of Cattle for the State of Massachusetts, taking into consideration *beef*, *milk*, and *work*. Does such a breed exist? If not, can it be made either by crossing known breeds or by selection, without reference to breed?

II. Manures, natural and artificial. The best mode of preparation. The best mode of application,--having especial reference to the soil, climate, and crops of Massachusetts.

III. The most useful system of instruction, by which to acquire a practical agricultural education, such as would fit a young man to commence the business of a farmer upon the average farming lands of Massachusetts.

IV. Best Essay on the advantages to be derived from establishing regular fairs or market days throughout the State, for the sale and exchange of agricultural products, together with the best practical method for commencing and continuing them so as to create new markets to the farmer.

No Essay will be entitled to a premium, unless it shall be considered by the Trustees or by those appointed to decide upon its merits to be of sufficient practical value to agriculture to make it worthy of publication in the Transactions of the Society. The Essays must be sent in to the Secretary on or before October 1, 1858, and the name of the author must accompany his Essay, sealed up in an envelop, and not to be opened unless a premium is awarded to the writer.

RICHARD S. FAY,
Sec'y of the Mass. Soc. for the Promotion of Agriculture.

FEBRUARY 13, 1858.

ESSEX.

INQUIRIES IN RELATION TO EXPERIMENTAL FARMING.

BY WILSON FLAGG.

Inquiries are frequently made with reference to the method that should be pursued in conducting an experimental farm. The subjects for experiment are so many and so various, that it is difficult to understand the rules that should govern a committee in their selection of those which are worthy to be tried on a farm of a limited number of acres. It may likewise be objected, that as farmers are constantly engaged in experimenting on their own lands, and with their own stock, instigated and directed by leading minds, that a farmer, devoted to this purpose, can do little but repeat the experiments which have been previously made by private individuals. We must, however, bear in mind, that when an individual carries on a series of experiments, the results may never be made known to the public. They may likewise be awkwardly conducted, and imperfectly communicated, so that between the want of scientific method in conducting them, and of clearness and precision in reporting them, the real facts are never ascertained. It may be added, that the experiments of an individual, acting in a private capacity, seldom obtain that degree of notoriety which would attend those of an association, and hence the former, however well presented, seldom reach the minds of persons beyond the immediate neighborhood in which they are conducted.

Let the same experiments be made by an association, and they immediately obtain notoriety. When published they are read by all who are interested in agriculture, and the facts are spread abroad over the whole country. All experiments would be concentrated upon this farm, which would otherwise be scattered over the land in widely separated places; they would generally be conducted with more skill and method, and the results would be presented to the public in an aggregate report, which would enable them to be seen at one view. A visit to the society's farm, when in full operation, and a perusal of its reports, would enable us to witness and to obtain facts which we could otherwise learn only by riding over a great many farms, and searching the pages of multitudes of journals. Experiments, made under the direction of an intelligent committee of an agricultural society would be judiciously selected, and conducted in a methodic and intelligible manner. There is no end to the advantages which a society would enjoy, for rational and philosophical experiments, on a farm under the management of a clear-headed and industrious superintendent.

Before we proceed to enumerate the objects which might be accomplished, it ought to be premised that the farm should be made to pay its own expenses, as this fact made known to the public, would afford to common minds the most intelligible and satisfactory evidence of the practical utility of the institution. The produce should pay for all the labor expended on it. Though it could not reasonably be expected that the farm, in a commercial sense should be made profitable to the society, the object of the donor would undoubtedly be accomplished, if the experiments made upon it should furnish the community with certain useful discoveries, without any pecuniary loss. If a fund should be bequeathed or donated to the society, it might be prudent to use up the interest of this fund without expecting any substantial returns; but the public would be better satisfied, if the produce of the farm should always cover the actual expense laid out upon the crops.

Let us now proceed to consider in detail the objects which should be sought in the conduct of the farm.

1. The society should confine its attention chiefly to such experiments as require too much science to be well conducted by the generality of farmers, and which are not impartially made by gardeners and nursery-men. The latter are constantly experimenting upon fruits, but the results are not always honestly given. Not that there is often a wilful and deliberate intention of deceiving the public, but these men are influenced by a strong temptation to exaggerate the merits of any new variety of fruit which they hold in their exclusive possession, and by the sale of which they hope to make a profit proportioned to their praises. Others who are not interested, might endeavor to expose the partiality of the encomiums passed upon the fruit by its proprietor; but the public has equal reason to

suspect the honesty of the contradiction, and the private tests of its value must be very slowly communicated to the public. On the society's farm these fruits might be fairly tested, and every-body could witness the honest result. The controverted merits of any new species or variety of esculent root or vegetable, might be settled by the same test.

2. Seeds are sent from abroad to the Patent Office at Washington, for distribution. The majority of these are probably of little value, but those which have never been fairly tried are legitimate subjects of experiment. There is no reason to believe that we are acquainted with every valuable species of grain or pulse which might be profitably raised in this northern climate. The success that has followed the experiments already made upon the Chinese sugar cane seems to warrant the belief, that there is yet a wide field open for investigation into the qualities and merits of other foreign articles of agricultural produce. The sorghum offers a probable source of a new and abundant supply of domestic sugar. Is there not some other vegetable yet undiscovered, that may afford a new supply of oil? Or may not oil be extràcted from the seeds of some well known plant that has hitherto been considered worthless? Experiments might be made in the cultivation of those plants which are known to furnish this product, with reference to their improvement. We do not yet know the real value of the seeds of the sunflower, cotton seed, rape seed, and the seeds of the poppy. Is there no new method of cultivation by which the fatness of the seeds of these plants might be increased? Why should this object be more difficult to attain than that of improving the sweetness of fruits, or the farinaceous property of esculent roots? Who is prepared to assign precise limits to the usefulness of these and other oily seeds, when improved by scientific culture.

However numerous or extraordinary the new chemical means for supplying the community with oil, the supply can never make headway of the demand. The whale fishery has long ceased to yield as abundant a supply of this product as it yielded when less oil was consumed. Lard oil has in a limited degree supplied the deficiency, but were it not for the use of spirits of turpentine for light, under the various names given it, for the purpose of deceiving the public in regard to its identity, and to the dangers attending the use of it in all its possible forms and under all possible circumstances, the people would be greatly distressed for expedients to supply them with light. One of the principle desiderata in the agriculture of the present age, is the discovery of some plant capable of being profitably reared in our own climate and on our own soil, which shall afford an abundant produce of oil; or what would be still better, the improvement of oleaginous seeds by a new system of culture. It would be expedient, therefore, to submit every plant that promises to be valuable in this respect, to the test of scientific experiment; or to adopt such new methods of culture as might be supposed to improve the qualities of those already known. If the application of certain alkalies to the soil will improve the quality of fruits, and if by the application of phosphates we can increase the size of grain, why may we not improve the oleaginous properties of seeds, by some yet undiscovered method of chemical fertilization? Chemistry may yet teach us the art of converting water into oil, through the agency of certain substances applied to the roots of the hemp or the sunflower.

3. It is yet undetermined whether it would be more profitable in our climate to cultivate the early varieties of Indian corn which yield a small crop but a sure one, or the later varieties which are not so sure but more productive. A series of well conducted experiments might unfold the means of turning these early varieties to a profitable account, by sowing the land after it was reaped, in the same season, with some other crop. No species of grain can be advantageously sown after the gathering of the later kinds of maize, while after the Canada corn is gathered, grass and several kinds of grain might be profitably sown for the next year, and increase beyond that stage of growth, that is necessary to secure them from injury during the winter.

Whatever might be the success attending any such experiments, there is undoubtedly a great deal to be learned in regard not only to the qualities of the different varieties of maize, but also with regard to its culture. One great desideratum is the improvement of this plant by increasing its property of early maturity, or its precocity, without diminishing its productiveness. Experiments should be made in order to combine, as far as possible, these two seemingly incompatible qualities in the same variety of maize. This may be done by careful selection and hybridization, and careful watching for accidental varieties, in which these properties seem to be combined in the highest degree. We must also call in the aid of chemistry in our experiments on this grain, since the ingenuity of man seems to have been exhausted in inventing any new mode of culture by the ordinary applications. It would be useful also to make some investigations into the different qualities of the white and the yellow, and the flinty and mealy grains. The white corn is preferred at the South for all sorts of bread and puddings and for husbandry, and the white varieties only are fit for table use in a green state. Yet the yellow corn is preferred by hogs, cattle and poultry. What is the chemical difference in these different kinds, and are different modes of culture required for each? These few suggestions are sufficient to show that there is yet much to be learned with reference to the different varieties of Indian corn, and the means of improving them.

4. The influence of hibernation, or a state of rest in the winter, on plants which are not accustomed to it, is a point which has not been sufficiently investigated, and it opens a wide field for curious and ingenious experiment. The results of such experiments might be turned to a profitable account in the culture of early fruits and vegetables. If we subject an annual plant, the tomato for example, when half grown, to a period of hibernation, we artificially convert it thereby, if successful, into a biennial, like the cabbage or turnip. How far is this practicable? Can any method be devised by which the tomato, the cucumber, and the melon, by a peculiar sort of protection, might be preserved in a state of rest from October until May, without injury? There is no question that if they retained their vitality and their health, after such hibernation, they would grow with extraordinary rapidity when exposed to the sun and atmosphere in the spring. We might by this means obtain ripe tomatoes in June, a season of the year when they would supply a very general want in the market.

It is well known that if any plant has been forced in a hotbed or a greenhouse, it loses some of its capacity for growing thriftily when transplanted into the garden or exposed to the open air. It remains apparently at rest for some time after transplantation, before it can acquire sufficient energy to increase in growth, under its new circumstances. The condition of the healthy plant which has been kept all winter in a state of rest, is the very opposite of this. Take two plants of the same species, which had attained the same size and maturity, one of which had just been raised in a hotbed, and the other just taken from the cellar, where it was deposited six months previously. Let them be transplanted into the garden in May, and the last would be found to grow more rapidly and vigorously than the first.

Experiments might be made for this object in various ways. The plants might be removed into the cellar and then covered with sand; or they might be allowed to remain in the garden-bed where they were planted, covered by a box, or protected by a bed of hay or sawdust of sufficient thickness to save the plants from freezing. They might also be protected from the subterranean communication of cold by a trench all around the bed, about three feet in depth, boarded and filled with some sort of dry chaff, to be kept dry by the shelter of a roof. When the plants were uncovered in the spring, they would commence growing in a state of forwardness very little behind that which they had attained when they were covered on the preceding autumn.

5. Our indigenous fruits are very imperfectly known to cultivators. Experiments to a limited extent have been made with the grape, the blackberry, and other species of *rubus*. But there are other fruits that might be rendered profitable by cultivation. One of the most important wants of the community is a good supply of fruit in the early part of the summer. At no season of the year is the want of fresh fruit so painfully felt, as in May and June. Might not certain species be discovered which would ripen their fruit at this early period. There is an indigenous shrub, well known to all who are familiar with our New England flora, which might be rendered highly serviceable by cultivation. This is the June berry, so called from the month in which it ripens its fruit, the *pyrus ovalis* of Bigelow's "Plants of Boston," and the *amelanchier canadensis* of Torrey and Gray. It is one of our earliest flowering shrubs, and has received the name of shad bush, from the period of its flowering, which is the time of the arrival of the shad in our rivers.

The earliest fruit of our fields and gardens is the strawberry, which is seldom abundant before the first week in July. It requires great care for its successful cultivation, and is extremely dear in the market. Were any new shrub to be introduced into our gardens, which would produce an abundance of ripe fruit in the early part of June, it would be an invaluable blessing to the community. The *pyrus ovalis* offers itself as a fit subject for such experiment. A quart of the fruit of this shrub, ripened before the summer solstice, would be more highly prized than a bushel of peaches in September. The berries of the plant are of excellent quality. The only question to be answered in regard to them, is whether they are susceptible of improvement, and whether the shrub can be made to yield abundantly by cultivation.

Early summer fruits are not only in great demand, but they are also highly important to the health of the community. Indeed, without doubt, a great deal of actual suffering springs from the want of them on the first approach of warm weather. The want in the system, which is supplied by the acid and other qualities of fresh ripe fruit, is more painfully felt in June and July than in any other part of the year. The truth is, we actually need the most fruit at a season which affords us the least of it. If by any mode of culture, the June berry can be made an abundant producer of early fruit, it would be more valuable to the public than any fruit which has yet been discovered.

Experiments ought likewise to be made upon other early fruit-bearing shrubs. The attention of cultivators has been hitherto exclusively confined to the domestication of autumnal or late summer fruits, from among our indigenous plants, such as the grape and blackberry. But late fruits are sufficiently various and abundant. Our attention ought to be more particularly directed to the earliest fruits of summer. The low blueberry (*vaccinium tenellum*) is very early in bearing, and by cultivation and care in the selection of the earliest varieties, it might undoubtedly be brought to maturity at an earlier period than the strawberry, and it would yield fruit with much less care and attention from the cultivator.

6. Another subject of experiment is the domestication of new species of birds and quadrupeds. It was the opinion of Audubon, who does not seem to have been a visionary man, that

many species of indigenous birds might be successfully and profitably domesticated. The greater part of them are of the genus *Anas*. Among these may be named the wood-duck, *Anas spousa*, which has already been partially domesticated; the black duck, *A. obscura;* the blue-winged teal, *A. discors;* the gudwell duck, *A. strepera;* and eider duck, *Fuligula molissima.* All these have been occasionally tamed, but no experiments have been made for the purpose of ascertaining their value as additions to our domesticated stock. Some of the grouse family are worthy of trial, two or three of which are recommended for domestication by Audubon.

Such new species as might be considered fit subjects of experiment, could easily be procured by advertisement; and many would be presented to the society by individuals who are curious in these matters. Rare birds are often brought home by adventurers from the interior of the continent, and by seamen. There are also undoubtedly some species of quadrupeds which might be useful additions to our domesticated kinds. I do not feel very sanguine of the success of operations in this department; but if one new and valuable species of bird or quadruped were brought under complete domestication by the efforts of the society, one very important item of experimental research would have been accomplished. The experiments would seem at least to draw public attention to the natural history of our own country.

7. Poultry ought not to be considered beneath the attention of the philosophical experimenter. The comparative value of the different varieties of the domestic hen has never been fairly tested. Notwithstanding the universal rage that prevailed a few years since, in regard to the rearing of poultry, the people seem to have acquired no useful experience. They still entertain the fallacious opinion that success depends on the selection of good and productive breeds, more than on any other circumstance. If any are convinced that more depends on a careful mode of rearing and keeping them than on the selection of the breed, they still suppose that success is owing to the use of some particular nostrum, and that the height of good management is the judicious dispensation of medicaments, that stimulate the productive powers of the hen.

Very few of our farmers pay any proper attention to their poultry; and so careless are they of this kind of stock, and so contemptuously do they regard it, that not one in twenty can estimate the cost of his fowls. Poultry are generally considered as causing more expense than profit to the farmer; and no one can doubt it who has observed the careless manner in which they are reared. As they are generally kept, they annually destroy more produce than they consume, and eat more after they have attained their growth, before they are killed, than the price of their flesh would buy, when they are carried to market. Two important things are yet to be learned in regard to poultry, first, the most economical mode of feeding and taking care of them; second, the most profitable age at which they should be killed, for the market, or for one's own table.

From some experience obtained by the writer of this essay, it would appear that there is considerable profit in rearing chickens to the age of three or four months, and that after that period they are expensive unless they are to be kept for laying. It is a rational subject of inquiry, therefore, to determine the cost of a chicken from the time of its first escape from the egg, during the first six months of its existence. It would probably be found that the only profitable period of its life, when raised for the table, is the first three or four months. If, for example, a chicken attain the weight of two pounds, from the time it was hatched, at a cost of six cents a pound, the next two pounds it would gain only at a cost of ten or twelve cents a pound, or in that ratio.

With regard to laying hens, it is important to learn what are the characteristics of each distinct variety, and whether there is any essential difference in their annual productiveness, supposing each kind to receive the most judicious care and attention. The speculators in this kind of stock have purposely deceived the public, sometimes lauding one variety, and sometimes another, in order to create a demand for that particular variety which they have for sale. There is not a single variety or sub-variety of the domestic hen, that has not had its turn in being eulogized by respectable authority, as exceeding all others in the production of eggs.

Some of the questions to be answered by future experiments are these: What is the best variety of the common fowl for the production of eggs, and what the best to raise for its flesh?

What variety of fowl arrives at the earliest maturity? At what age ought a hen to begin to lay, in order that her eggs, moderately produced, should pay for her cost previous to her laying and afterwards? To what age in general might hens be kept for their eggs, before they cease to be profitable? At what period of their growth is it most economical to kill chickens for their flesh? What season of the year is the best for raising chickens to supply a stock of laying hens? What effect has the rearing of two or more broods of chickens during the summer, on the productiveness of a laying hen for the remainder of the year? Will she make up by her fruitfulness in the autumn and winter, for her rest in the summer? Is the effect of stimulants, like pepper, to increase the annual amount of eggs produced by the fowl, or is it merely to hasten the production of them at a particular period? The answers to these questions should be learned by experience, since it is only by attention to such minute details in the management of poultry, that they can be made a profitable stock.

8. The art of feeding other kinds of stock, though it has received more attention from our farmers, is very far from being well understood. It is doubtful if experiments with reference to this art have ever been conducted very methodically in this country. Some of the valuable and economical practices of the European peasantry might be tried, and introduced to the attention of the public. The profitableness of stall-feeding for cows has not yet been the subject of general experiment. This is not a matter of so much consequence here as in Europe, though in the neighborhood of our cities pastures are not easily obtained, nor very accessible. Many families are deterred from keeping a cow, which might be made a source of considerable profit to them, by supposing that one cannot be well kept without a pasture. In relation to this point it is important to ascertain what is the influence of stall-feeding upon the healthy condition of a cow? Will she bear confinement in a stall and yard without incurring disease? Are there any means of supplying a cow with that sort of moderate exercise, in a state of confinement, which would compensate for the want of that which is obtained in the pasture?

What are the effects of different kinds of food upon the quantity and quality of milk? The German peasants feed their cows upon a farinaceous gruel combined with straw. Ought not all their farinaceous food to be made into a gruel, in order to render it more productive of milk by assimilating it to the nature of green, succulent food? The supposition is that food in a dry state tends to increase the fat of the animal, while the same food coagulated with water, tends rather to increase the quantity of milk. Is there no plant, without the disagreeable properties of the cabbage, that might be preserved in a green state during the winter, to supply the cow with succulent food at this season? Will more milk be produced by green, succulent food, combined with hay, than by the same hay combined with thin, coagulated meal porridge or gruel?

Is it expedient to employ cows for any sort of labor? If they are fed in their stalls and not sent to pasture, would not a certain amount of labor be useful to them? What is the effect of labor upon the quality and the quantity of milk produced by the individual subjected to it? If the common labors of oxen are too severe for a cow, might she not be used in an easy tread-mill, to cut her own fodder, to shell corn, or even to churn her own milk. These questions might be indefinitely multiplied, but those already offered are sufficient for suggestion. In this place we might also speak of the importance of ascertaining the comparative value of the cow and the goat, for supplying private families with milk.

9. Not inferior in importance to any of the subjects already mentioned, is an inquiry into the capability of the soil. What amount of any description of produce may an acre, when raised to its maximum of fertility, be made to yield? And how far is it for the interest of a farmer to confine his labor and attention to a small number of acres? The less ground in a farm of any given extent is under tillage, the more remains to grow up to wood, or to be devoted to pasture. If a farmer has been accustomed to raise upon twenty acres of land, a certain quantity of produce of different kinds, by the labor of three men, and the same quantity of produce, by another system of tillage, could be raised upon ten acres of the same land, would the labor of the same or a smaller number of men be required to effect it?

Admitting that a saving of labor could be made by adopting the concentrated system of tillage, it still remains undetermined whether the ten acres, mentioned above, would require the same quantity of manure which was used upon the twenty acres in the previous system of culture, to be made to yield an equal amount of produce. If five hundred dollars worth of manure would obtain five hundred dollars of net profit from twenty acres, would it require the same quantity, or less, or more, to obtain the same profit from ten acres? Would the increased productiveness of the soil, trenched and worked, and manured in such a manner as to be raised to its greatest capacity, pay our farmers for pursuing such a system, or approximating to it, throughout their own husbandry?

10. What influence has the cultivation and draining of the soil upon the temperature of the local climate?* Is the atmosphere resting over a certain tract which is naturally wet, rendered warmer by perfect drainage? What is the difference of temperature at the time such a difference exists, in two contiguous fields on the same level, and originally of the same character, one of which remains in a wet and boggy condition, while the other is thoroughly drained, and converted into a dry and friable soil? At what season and at what period of the twenty-four hours, is this difference of temperature perceptible? There is reason to believe that it is very considerable during the summer, especially on summer nights. Wet lands radiate more heat than dry lands, and this heat escapes into the higher atmosphere. Hence the great liability of low lands to be affected by spring and summer frosts. The influence of drainage upon the local temperature of any tract, is a curious subject of investigation. The advantage of draining, in order to insure good crops, is well known and admitted on all sides. How much does the consequent change of local temperature contribute towards producing these superior crops? Many a farmer whose lands are wet, and whose situation is comparatively cold in summer, would render his home more comfortable and his farm more productive, by perfect drainage.

A series of experiments should be instituted, to ascertain, as nearly as practicable, the precise amount of benefit accruing to the local climate, from thorough and extensive drainage. The subjects of inquiry are not only the amount of change effected in the temperature, but also the time of the day and of the year when it is most sensibly felt. It would probably be found to be the greatest during the four warmest months of the year, and most perceptible in the night, especially when there is a liability to frost.

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* This question is more fully discussed by the author, in Hovey's Magazine for November, 1857.

11. The potato disease deserves to be made the subject of experiment by every association connected with agriculture. It is time that every farmer tries more or less experiment, either incidentally or for the purpose of obtaining information on the subject. But their experiments are not the result of concerted action, and are seldom based on a sound, inductive method. A farmer in the town of A. may be engaged this year in expensive trials, which have been repeatedly made without success by farmers in the town of B. On a public farm such experiments might be conducted on the most philosophical principles,—the experimenters having the advantage of suggestions from scientific and practical men throughout the world.

Though it is not probable that an absolute cure or prevention of the potato rot will be discovered, we may, perhaps, by a series of experiments conducted on true inductive principles, learn the means of keeping the potato comparatively free from disease. We should inquire: What kinds of soil are the most favorable, and what kinds are most unfavorable to the sound condition of the potato? What is the influence of a greater and a less amount, than an average of dryness or humidity? Is there any chemical application that would lessen the evil effects of moisture, if excessive moisture be one of the secondary causes of the disease? Does the potato remain more exempt from the rot, in a sandy, or in a calcareous soil, of equal humidity? Is there any kind of soil that is uniformly favorable or unfavorable to its soundness? Does a virgin soil produce a sounder crop than one that has been freely composted? What are the effects of different kinds of compost, of the different modes of distributing it, and of small or profuse quantities?

Above all, is the potato disease contagious? If contagious, may it not be communicated by growing the potatoes in a soil in which diseased potatoes were raised on the preceding year? Might it not also be communicated by using compost, in which some of the diseased tubers had been mixed? This appears to be a very probable conjecture. If the disease be contagious, it is evident that it might be checked and perhaps nearly eradicated by observing the following requirements: 1. Let every diseased potato be burned, boiled, or dissolved in caustic, before it be thrown upon the compost heap or upon the land. 2. Let no field in which potatoes were raised the preceding year, unless they were perfectly sound, be used on the following year for a potato crop. 3. See that no rotten potatoes have, at any time, the least communication with those which are designed for seed. 4. If there be any probability that the seed potatoes have thus imbibed a taint, let them be washed in the chloride of lime before they are planted, to kill the virus that might otherwise be buried with the tuber, on its surface.

As the means of ascertaining whether the disease be contagious or not, we might institute the following experiments: Let a virgin soil in a field, say of three acres, be ploughed at one time, and divided into three parts, taking care that the soil of the whole field is uniform and equally exposed to light and moisture. Manure one of these acres with a compost containing a liberal mixture of diseased potatoes. Let a second be manured with some substance that could have had no possible communication with the virus; and let the third portion of the field remain without the application of any kind of a fertilizer. Plant each division of the field with sound potatoes, of the same kind and from the same lot, after washing all the seed in some disinfecting fluid. Take pains to cut open every tuber before it is planted, to see that it contains no visible marks of the disease or of its symptoms, and reject all that look suspicious.

Watch the result when the crop is taken from the ground. If the potatoes in the first division, which was manured with compost, containing diseased potatoes in a decayed state, bear a crop which soon becomes infected, while those in the other two divisions remain sound, we have incontestible proof that the disease is contagious. But it still remains to be proved that there are not also other ways by which the disease might be engendered. A constant repetition of such experiments continued through a number of years with the same result, would demonstrate that the disease might be averted, by scrupulously preventing any communication between the planted crop and the disease, either through a contaminated soil, or by contact with diseased potatoes.

Experiments with the potato might also be made, in regard to its connection with the atmosphere. It is possible that the source of the disease may be meteorological; that it is some effect produced by the atmosphere upon the vine, and communicated from the foliage to the tuber. But enough has already been said to show that thousands of new facts it may be needful to ascertain, before we can obtain a clue to the cause of the potato disease. Let us not despair, however, until every possible mode of experiment has been unsuccessfully tried, of yet discovering the means of averting this great calamity.

12. It is highly important to learn the comparative profitableness of *scientific* and *empyrical* farming; understanding by the former the custom of reducing enlightened theory to practice in cultivating the ground, and by the latter the art of tilling the ground by the rule of precedent and experience, and of fertilizing by composts prepared, not on chemical principles, but according to rules ascertained by practice. The latter, or the empyrical system, is the most certain and indeed the only safe one in the hands of a merely practical farmer; as the use of decoctions for the sick is more safe in the hands of an uneducated physician, than the concentrated and to him unintelligible drugs of the apothecary. But the question is not whether we can substitute any thing better than compost, in the place of it, under circumstances that render it abundant and easily procured; but whether, under circumstances in which compost is hard to be procured, the use of chemical fertilizers may not be reduced to such method and science, as to be equally cheap, sure and efficacious.

Such experiments are constantly on trial by cultivators in different parts of the world; but they are no less worthy of being tried on the society's farm. We cannot trust implicitly to the published results of the trials of substances which form a staple article of manufacture and commerce, because they are invariably puffed beyond their merits, like patent medicines, by those who are interested in their sale. The society, which is not likely to enter into any commercial speculation by the manufacture of fertilizers, may be considered a disinterested body, and the published result of its experiments would have its due weight with the public.

But this is not the only line of investigation with reference to chemical farming. The mixing and compounding of different soils, after ascertaining their nature by chemical tests, is a curious subject of inquiry, which may lead to important results. There are some ingredients which improve the soil when applied to it, and yet evidently impart none of their substance to the crops that are improved by it. What is the nature of the benefit they yield to the soil? Take charcoal for an example. Is this substance simply hygrometric in its action as a fertilizer; or is it also a chemical absorbent and *fixer* of certain volatile matters which are useful to plants? Why is plaster useful as a fertilizer of certain upland soils? Does it supply the soil with a chemical ingredient that constitutes a part of the food of plants; or is this substance simply hygrometric, and does it act by retaining moisture in a condition that renders it available to the roots of plants, while it is not liable to be confronted by the sun and atmosphere?

It is needless to multiply these queries, which might be indefinitely extended. A few leading questions will nevertheless seem to point out the direction which a philosophical experimenter might be disposed to follow. It is important to learn by experiment to distinguish between these substances which act by *fixing* and retaining volatile matters, that enter into the organization of plants, and those, on the other hand, that are the immediate food of plants. Among the former, charcoal may be classed; for though carbon is an important part of vegetable nutrition, it cannot be supplied to vegetation in the form of charcoal. To be rendered available to plants it must be in a gaseous or in a liquid form, like carbonic acid and carbonic acid gas.

13. The art of preserving our crops and other vegetation from the devastations of insects, is one of the most important that can occupy the attention of the cultivator at the present day. There are some species of noxious insects which have increased to an alarming extent, within a few years, and that seem to multiply with greater rapidity than the agents employed by nature, to check their over-multiplication. Birds are generally supposed to be the the most useful of all these checks.

Next in importance to birds, are certain species of reptiles and small quadrupeds; and lastly, there are predatory insects, that live by the destruction of other species of their tribe. Naturalists have not generally made this subject their particular study. They have been satisfied with ascertaining the general character of the food of the animal under examination. They are able to inform us that certain birds live upon insects, others upon seeds, while others are omniverous and birds of prey. The same may be said of their remarks on the food of reptiles and of the smaller quadrupeds.

Experiments remain to be made with special reference to the comparative importance of each species of birds, reptile and quadruped, as destroyers of these vermin. Which are the most useful and diligent devourers respectively of grubs, of caterpillars, of chrysalids and of insects in their perfect form? There is a disposition on the part of the majority of fruit cultivators, to underrate the services of those birds which steal the fruit of our gardens. The common robin comes under their ban on this account. The robin does not hunt the bark of trees for his food, but he devours vast quantities of those injurious grubs that live upon the surface, or near the surface of the ground; such as the cut-worm, the chrysalids of beetles, and moths, while they are in a feeble and nearly metamorphosed state. All these particulars should be ascertained; and the birds should be classed according to the description and the value of their services.

The society should institute a series of investigations to be carried on at their own farm, and should open a correspondence with individuals and other societies, for the purpose of collecting authentic information from all foreign sources, in regard to the food of every kind of bird, of the common toad, the tree-toad, and of every species of insectivorous reptile and quadruped. Such investigations might lead to very important results, if the superintendent of the farm was a man of ingenious and scientific turn of mind. At the farm should be kept a specimen of all insects injurious to vegetation, classed as far as they will admit of it, according to the department of vegetation to which they are injurious. Let those which infest the grain form one class, the devourers of the leaves of plants a second, those which are destructive to the wood a third, and so on, according to the part of the plant which they attack. Side by side with each, let their natural enemies be arranged, among birds, quadrupeds, reptiles and insects. In this way materials might be gradually accumulated, which would supply the public with a fund of curious and useful information.

In conclusion, some inquiries might be made with reference to the general mode of conducting the farm. It is necessary that some intelligent and well educated person should be appointed to superintend the operations of the farm ; one who has sufficient knowledge to see that the experiments are performed in a scientific and economical manner, and sufficient skill as a writer to present a faithful and luminous report of the process and result of all important experiments. The superintendent should be the secretary as well as the president of the establishment. Practical men are generally wedded to routine and prejudiced against innovation. Their services would be indipensable on the farm, to conduct the plough, to swing the scythe, to advise concerning times and seasons, and numerous other practical details of farm labor. Such men are for laborers and advisers, but not to superintend. The superintendent must be a man of logical mind, and expanded views, who is capable of discerning at once the true aim and nature of every experiment that is proposed by the society. He must see the bearing of every operation upon the general conclusion that is to be drawn, and not only incapable of blunders in his own plans, but capable of detecting the flaws that may exist in the plans of others. The superintendent will be placed between two sets of individuals—first, the society represented by intelligent men of theoretical and practical knowledge, and second the men who do the labor of the farm, from each of whom he will obtain hints, by means of which, through the medium of his own pen, he is to digest all facts into an intelligible result.

He should be a man of sober habits, who is willing to confine himself to the duties of his office ; who is not bigoted to old practices, nor wedded to whims and theories originating in his own mind ; a married man who will make his home upon the farm, and superintend the labors which are performed upon it. He must not be worldly-minded, to make his office an excuse for riding round to see men and sights, nor a horse-jockey who is too proud to attend to the inferior animals. See that he prizes a cow and a sheep no less than a horse or a dog. Otherwise the woods surrounding the farm may be made his hunting-grounds, and the adjoining streets a race-course. See that he is not a man of vulgar mind who despises little things; but a practical philosopher who is not above the necessity of giving his attention to what the former would contemptuously regard as trifles. See that while he is capable of prizing a noble tree, he does not look with contempt upon a whortleberry bush, and that he can look after the welfare of a toad, on account of its useful sevices, and not centre all his interest upon a blood-horse or an imported bull.

The humble as well as the more attractive concerns of the farm should receive a due share of his attention. He should not despise information from the most humble sources, nor exaggerate the importance of that which proceeds from men of high position. By his reports he should endeavor to enlighten the public mind with reference not only to the immediate subjects of experiment, but should enter into the philosophy of rural life, domestic economy, and the ethics of agriculture. He should endeavor to exhibit the true aim and rational ambition of the farmer and the farmer's family, and to throw a charm around the humble homestead, which should render it more attractive than all the splendor of the city.

NORFOLK.

ARTIFICIAL PLANTING OF TREES;—ITS IMPORTANCE AND BENEFITS.

BY REV JOHN L. RUSSELL.

Nature, in its kindly ministrations, has clothed the surface of the earth with vegetation. No spot of land, no outside of rocks, nor even still or running waters, that are devoid of some kind of plants. The enterprise of industrial art lays bare the long-covered strata of stone, railroad cuttings through sterile gravel ridges, swamps, bogs and miry places made firm by deposit of foreign substances, instantly assume new forms of vegetation, and the rudeness that labor has occasioned is covered with drapery of plant-life. Myriads of minute plants, seen only in their distinct proportions by the microscope, spring forth upon the smoothest surfaces, others, of a larger growth, upon the quarried rock; out of their decay, grass and shrubs and even trees, in turn, rise, and no waste of opportunity or of space is allowed in the economy of nature. The hardest rocks, abraded thousands of years ago by the iceberg and polished by the drift geological material, and left covered by superstrata of earth, when exposed to light and moisture and the atmospheric changes, yield some kinds of *alga* or *lichen,* from which the botanist foresees manifold uses to future generations. He traces, too, in the sedimentary layers of mud of the ditch or of the pond, wonderfully constructed vegetables, and anticipates from their agencies new fields of labor to unborn nations, whose people shall "plant vineyards, and sow fields, and dwell on the dry ground," which once were "standing pools." To a benevolent Creator's will and power these most minute agencies of nature are made subservient, and no soil so sterile which may not be converted by His wisdom into results beneficial and important, and from whose lessons science is not enabled to profit and to make practical application.

This almost instantaneous presence of vegetation upon new, artificially-created areas suggests a lesson of some importance. It implies the need of such agencies in fitting this earth as a comfortable residence of men. The chemist analyzes the rock, the solid ground, the semi-fluid mass of bog and mire, and detects in them all some particular elements favorable to some peculiar sorts of plants. He analyzes the plant and finds in turn secretions, which act upon such substances, and which render them fit for successive and higher orders. The results of combined observation and study encourage industry in new channels, and recommend some hitherto untried plan to renovate or beautify the earth's surface.

Artificial planting and culture of forest trees has been left too much to the man of fortune or to those of decided artistic tastes. By want of judicious observation on the part of otherwise practical people, a great many serious blunders have occurred. The proper season to sow the seeds of forest trees, the proper modes of raising the seedlings, the proper time to transplant them, the soils adapted to them, have been too often the tediously slow work of experience, and hence repeated failures. Many farmers are, therefore, deterred; but would they take some slight notice of, or read some treatise on the subject, such errors would be few. Much of this work could be done by the junior members of the family, who are to reap the most benefits hereafter. And then, again, from what the observation of many years has shown, I am convinced that there is no farm so barren that could not be immensely improved by attention to tree planting. There is no reason why farmers should not be arboriculturists as well as the men of fortune and of taste. Why leave this branch of industry and profit to them; and why not learn from their experiments what costs the farmer nothing, but brings him in sure results of profit? True, every farmer is interested in orcharding, but arboriculture belongs to him likewise. Indeed, the arboricultural art addresses him rather the more of the two pursuits, and he might better plant shade and timber trees than fruit trees. The orchard, in its wider sense of a place for fruit growing, belongs rather to the horticulturist than to the farmer. The usual and necessary avocations of the farm cannot afford the requisite time for care of the choicer apples, pears and peaches, which are the best fitted for the market, as the market now-a-days is expected to be; and while the insect foes have so much increased in numbers and in their ravages, more demand still is made of the farmer's time to keep them in check. A few trees could supply the family; but to raise market fruit has become an occupation of its own. Even the apple trees should have no ordinary care, would they pay well and make a return of all their possibilities. A very few acres of land, kept in excellent heart by careful manuring, by judicious pruning, by washing the trunks with alkali to destroy vermin, in fine, by the art of fruit culture, would, if near an available market-town or city, yield a greater return than farms of much wider area. And these few highly cultivated acres would afford the best sorts of apples, the choicest kinds of pears, and the most delicious cherries; yet all these are the results of a horticultural rather than an agricultural department of industrial toil. I repeat, then, that trees requiring such attention do not belong to the farmer, for he could not spend the time, bear the cost, nor devote the attention, if he depends, as it is expected he will, on his Indian corn, his grass and root crops, with other field produce, for his living and business. He cannot afford "to serve" two "such masters;" one or the other must receive his chief service. All this reasoning does not apply to arboriculture; and a well-regulated farm, now-a-days, seems to look toward the artificial rearing of forest trees, as well as toward their protection for the future increase of its value. In some sections of Massachusetts, forest tree planting, I am sure, would be very important; and in every instance there are valuable species of such trees, which could be readily introduced without any great outlay of cost or trouble.

Then, again, our State, indeed all New England, may be considered as peculiarly fortunate in the general adaptedness of climate to the growth of forest trees. Some of the finest kinds, native to Europe, stand our winters perfectly, and grow with vigor. But where circumstances or want of availabilities incline any one against the raising of foreign species, the immediate vicinity may afford sufficient variety. It is my intention to specify some such as could be rendered both ornamental and useful to the most ordinary farming purposes and to the most varied soils.

Massachusetts farms may be divided into four or five great divisions of the soils found upon them. These may be thus stated, viz.:—

1st. Light, sandy soils.
2d. Gravelly or thin soils.
3d. Rocky soils, much broken by ledges.
4th. Boggy or peat meadow soils.
5th. Stiff, clayey, loamy soils.

On these different soils particular kinds of forest trees thrive best. Observation can easily point out ways for using all these to the best advantage for artificial plantings. Often what were once timber or woodlands have become, by accident or mismanagement, sterile and unproductive; and for such places this planting of trees might be prudent as well as wise. It is no uncommon thing to find on the same farm acres of "good for nothing" land, but still capable of becoming good for something. A little extra attention to these may turn them to some valuable account.

Besides this, a little thought should be spent on the dwelling-house and barn, on the cattle-yards, pigsties, and other surroundings, to get the greatest amount of comfort from one's farm. This observation is trite in the general, so prudent in these particulars have good farmers become. But I make it in this connection as bearing on the topic of my essay. Trees make the homestead more attractive, and help much to its comfort. Indeed, what is more attractive to the eye, what more refreshing to weary limbs, what could be more pleasant to declining years, what more salubrious to young children than fine shade trees, shrubbery, some little flower patch even, near the dwelling? A root of blossoming chrysanthemum, in some rude wooden box even, a rosebush trained over the front door, a few beautiful flowers in the borders of the sauce garden or herb beds, some bright berried shrub, such as the spindle bush or tree cranberry or mountain ash, planted near the wall, will add much to the real pleasure, attracting, too, the birds about the house and garden; the birds, the friends of the farmer. I consider these as sureties of self-respect, of refinement and culture within. The noble, spreading, umbrageous elm tree of a century's growth overshadowing the house, old and venerable as it may be, and weather-stained and even paintless as it may have grown by time, is significant of some such limited prospective wisdom of ancestry, who planted for the comfort and pleasure of those who were to come after them. I often see farm houses which seem to stand out of doors, they look so lonely and cheerless, and with a mean kind of air, as if they had no right on the premises, but intended to quit on shortest notice. The sun, too, seems to consider them as some ripening vegetable production, and glares upon them with his most vivid rays, as if to fit them for harvest, and to have them ready to be gathered and stored away with the pumpkins and corn. And in a cold wintry day, how the wind sweeps, and howls, and mutters about them, making one feel that discomfort must be within as well as without. This, to be sure, is not always the case, and often hospitality may be found in such abodes. But how it would warm the heart, how cheer the whole man, how much more social and refined the aspect of the farm house, when judicious planting about it would render really delightful the scenery by beautifying the premises. If a new house were never considered finished or fitted for a residence until shade trees were provided, or an old house were considered defective until tree-planting were attended to, its owner would find how much dearer his home would become to him year by year. It is time to do away with our strict, puritanical notions of utility, and to do away with habits of thought and of practice, which are better suited to a century ago than to the present day. A man will have none the less potatoes because he has a maple or two on his avenues, nor need he abridge his field crops because he chooses to raise artificially a few acres of pines. The idle complaint of want of time to make these experiments is altogether too idle for excuse; for we have all the time there is, and it will be found enough to fulfil whatever our hands find to do, if interest and prudent calculation are in the right place. And then, too, who does not know the influence the female part of the family exerts? Who so churlish as to refuse to gratify a wife or daughter by a little extra work to make their homes more agreeable? I have been acquainted with wives in farm houses whose hands "were never weary in well doing," and who were ever diligent in houshold cares, yet finding time for rearing a tulip bed, for tending a flower patch, or pruning the shrubbery of a few choice roses or the like. And it may be set down as a truism, that uniformly the most industriously employed are the very ones who have at their command the most time for whatever improves or benefits themselves or others. What flowers and shrubs are to the women, the trees are to the men. Trees are but flowers of a larger growth, and which pay back larger dividends of profits. A fine avenue, such as any one might justly be proud of, will soon grow; a few years may make great changes and greater improvements in looks, comfort and utility even. I can recall some splendid elms which have made an otherwise unpleasant site one of the most cosy and pleasant places in the village; and a line of elms, ashes, &c., which really make celebrated a sandy public road, otherwise avoided if possible, but now sought for its beauty in the drive or ride. Many were the thoughtless jeers at the expense of those who undertook the thankless labor of love and "good will to man;" but now double the thanks to the memory of those who, dead, yet speak in their deeds.

A great many folks, and it is not confined to the farming occupation, value a tree if it can be compelled to bear something to eat. They would graft their elms with pears, their larches with apples, and their chance shade trees with plums and peaches. But failing in this impossibity, they regard such pleasures as encumbrances, and would be glad to have them away at shortest notice, preferring a poor cider apple tree to a splendid button-wood or elegant horse-chestnut. I allow that the mouth and the palate are valuable organs, and so is the stomach; indeed, without them we could not well exist under the present arrangements of life. But we should never forget that "man cannot live by bread alone," and that the mind, heart, and the higher natures claim our heed also. Were we created with more decidedly animal instincts, those prudent and careful considerations would be more commendable; but we are "living souls," and the soul of man and his truest spirit exhibit themselves most correctly in rising above grosser thoughts. And as such was intended in the Creative plan, what would it profit to "gain the whole world and lose the soul?"

Some sorts of forest trees and of a highly ornamental and picturesque character, do actually bear fruit without grafting or budding; and if we *must* have the useful with the ornamental, there are the walnuts and shagbarks, and chestnuts and beeches, and wild cherries, all tempting to boys and to birds alike, and all ornamental too. And then the nuts would afford abundant treats for the one and the cherries for the other; and without both, in their relative places, the farm cannot get along. We can as little spare the birds as the boys, and the truest interest is to preserve these little and industrious insect devourers, which keep in check hosts of enemies to the farm.

And while speaking of shaded avenues to the approach of the farm, I recall one planted with the yellow locust tree (*Robinia pseudacacia.*) This tree is highly commended in Emerson's Report on the Trees and Shrubs of Massachusetts. In this instance the trees were planted along the county road, just outside the field-walls on either side; and by thinning and pruning, they had risen to the height of forty or more feet; and in a hot summer's day, scarcely any thing could exceed them in real comfort of shade, beauty and cheerfulness. This tree, too, has been found decidedly advantageous to plant in clumps or belts, or in artificially formed woods, to renovate the soil, as there seems to be something very fertilizing in the decay of its foliage, while its shade is not destructive to grass, which actually has been known to spring up thickly, after a little time, where none grew before. I have often looked with extreme pleasure upon another more ancient avenue of the yellow locust trees, whose stout stems and broad branches rise to upwards of seventy feet, and whose tops in the leafy month of June are laden with fragrant, snowy blossoms, tempting to bees and regaling the senses of man. The generous and hospitable owner of this farm is justly proud of this ancestral glory; and who would not consider it a noble crop?

The yellow locust tree grows readily in any light soil, and can be most easily propagated by setting out the young suckers, or even pieces of the roots; but seedling trees are always most advantageous. I have known this course pursued, however, in covering old, worn-out rye fields, and thus inducing a rapid growth of a tree, whose improving qualities are undeniable. These pieces of the root, a foot or more long, could be planted like potatoes, in furrows made by a light plough, and the work of a few hours may tell well at no distant day. It is presumable that many farmers and land proprietors would prefer any kind of vegetation, to having their barren fields covered with mullein and golden rods. I have been informed also that on such places the black, wild, cherry tree (*Prunus serotina*) will grow very fast. The aspens or poplars, of which we have several species, spring up readily, and are also adapted to such soils; and that kind called *Abele*, or silver-leafed poplar, would soon cover an area with its natural plantations. This is a very rapid growing tree and becomes respectable in size in a very few years. Fifty years since, there seemed to be a sort of rage for planting a very inferior kind of foreign tree,—the Lombardy poplar,—happily getting out of repute; yet even this unsightly species is better than none; though I should not recommend its planting. As, however, no tree whose falling foliage does not return threefold more to the earth than it took from it, true wisdom has learned to be patient with every sort of tree which will please to grow where nothing else could readily be made to thrive.

A farm that has the misfortune to have fields once cultivated, but afterwards overspread by drifts and heaps of loose sand, need not allow further increase of so dire an evil. To say nothing of the probability of growing the white birch (*Betula populifolia*) upon it, the pitch pines (*Pinus rigida*) and white pines (*P. strobus*) and even the red pines, (*P. resinosa*,) sometimes called the Norway pine, can be most readily planted and raised. I have seen such fields, in part, redeemed by this process; and a very few years were found to be sufficient to clothe with perennial greenery, these waste and sterile sand drifts. All sorts of evergreen trees and shrubs should be taken up for transplanting after they have begun to grow, and the new growth should be three or four inches long. With pine trees, this occurs about the middle of June. I am familiar with an instance in which nearly an hundred pitch pines and a few white pines were planted out by a few hours labor, and which all grew with remarkable celerity and vigor. By and by, the loose sand became bound together by their roots, and its surface so deeply carpeted by its dry and persistent needle-shaped leaves, as to stop any further drifting or changes. The pitch pine has been successfully planted out at Nantucket, where the bleakest winds render almost every tree-growth a difficult matter; and if these experiments were instituted by some public measures, it would not be long before that island would be clothed again with a thick forest growth, such as were roamed in by its Indian tribes before the white man came and stripped its leafy honors. I was once shown a single red pine tree, which stood on the edge of an old rye field, from which, in about forty years a respectable forest of its progeny had sprung up around it, and rewarded the careless spirit of letting it alone in its work, by its industrious yearly increase.

The white birch has been incidentally mentioned among the kinds of trees well fitted for a poor soil. According to my observation, it seems best adapted to the second division, viz.: to gravel and gravelly ridges. This tree is, usually, near the sea-coast, of a small size, but still it is of economical value. It grows very fast. A friend, who has much of it upon portions of his farm, assures me that he considers it as one of his best crops. He cuts, for market, the young stems down to the roots, as often as they are of sufficient size for hoops of nail casks. I have repeatedly noticed that white birches spring up very thick and readily from seeds self-sown by the winds, upon the quick-sand often found under those small, gravelly hillocks, when they have been removed to fill with their material some lower spot, or in making enbankments. The same facility of growing is noticeable in the old cart-paths and in grassy pastures, where the sod has been abraded and the soil laid bare. The process of vegetation on soft, quaking quicksands is curious in the extreme. In the course of the first year, mosses appear, then, on the next year, the little seedling birches, then a bulrush or two, by and by some grasses, the moss growing thicker and more abundant, but the young birches outstripping every other form and invading the newly exposed soil like a conquering host. It is evident, from these facts, that what Nature thus easily and readily does, art could imitate, and that unlimited supplies of seedlings could be raised with as little trouble as we employ in sowing carrots on better lands. The white birch, small as it grows, is considered a very valuable fuel for the stove, if cut and suitably seasoned; and what trifling amount of labor would plant coppices of the tree on every sand pit, gravel bank and other encumbrances of the farm. Several kinds of the oak grow naturally upon gravelly spots; and this tree is not difficult to transplant, especially if raised from the acorn in the seed bed. When we look at an old oak tree, we compute the long years of its probable growth, but we are not aware how fast it really grows from year to year. I know respectable oak trees, of the third and fourth generation, from young seedling plants imported for the pleasure grounds of a gentleman, who lived to see the acorns of their posterity to that descent, actually five generations, from his seedlings imported years before in flower pots, so small were they then!

The artificial planting of forest trees is even available on rocky soils, much broken by ledges and by crumbling fragments of stones. Here, one of the very best trees is what is called the Scotch larch, similar to our hackmatack, an account of the successful planting of which in Scotland, may be found in Emerson's Report, p. 91, which is well worthy of perusal and imitation. I know myself of extensive plantings of it on spots seemingly most unpropitious for any sort of tree. The red cedar too (*Juniperus Virginiana*) is admirably fitted for such places, and when these trees spring up spontaneously, they should be encouraged by lopping off the lower branches and inducing them to rise to greater height, for in a few years there will be a fine crop, fitted for making posts and rails for the pains. The red cedar bears this lopping and pruning so well, that it can become used to the shears under hedge culture, and can be cut into any requisite shape. One of the most picturesque little spots I ever saw, was composed of a rocky ledge, out of which and rising above the wild growth of smaller trees, a sour gum (*Nyssa multiflora*) shot out into the air, equally beautiful and attractive in winter, when its straggling and flattened branches were grotesque and unique, as in summer, when its dark green foliage was lovely, or in autumn, when crimsoned by incipient decay. Some amateur may chance give more money to purchase its surroundings for a dwelling-house, than the entire price of the farm without this pretty knoll would amount to under other circumstances.

The hop hornbeam, also called leverwood and ironwood (*Ostrya Virginica*) thrives upon the scanty soil of such spots—a tree a thousand fold better for use than bare rocks and sunburnt ledges.

For quick growing, ornamental and useful trees, the maples stand conspicuous. But the sugar maples, *Acer saccharinum* and *Acer dasycarpum*, the most sweetly and pleasantly useful, require good soils, and such as it is considered are better employed in other ways. And yet it may be a question whether for utility or for ornament, land by the sides of fields bordering on public roads could be better used than in the culture and care of these trees. The Chinese sorghum will never do away with the sugar maples, as a producer of the sweets of life, nor do I believe that in the long run, that grass will be preferred to the tree, especially while it is problematical whether cane sugar can be produced from it.

The well-known value of the willows (*Salix spp.*) for securing pieces of roads over swampy and miry places, while they also afford agreeable shades, renders this group of beautiful trees more worthy the attention of the farmer. I have often wondered on seeing patches of perfectly worthless lands on farms, why a few hours' or days' labor had not been expended to redeem them. Hollows consigned to the blackbirds and frogs, could be made to produce some sorts of willows, and by degrees, to afford, by their tops, occasional fuel for many years.

The willows grow so easily, that pieces of the branches cut into stakes and driven into the mud, readily root and grow into fine trees. Rows of these rudely prepared cuttings, planted over the surface of such places, would surely be more comely than wild bushes and noisome weeds. The osier willow or golden willow (*Salix vitellina*) is a beautiful tree in summer, spring or even winter, and is worthy of note. I have seen this tree planted near out-houses with signal effect. The weeping willow (*Salix Babylonica*) grows rapidly and large, and is very ornamental, and grows from any one of its twigs planted out in the spring time. There is a kind of dark green willow, a shrub with rich, smooth, shining leaves, as beautiful as a foreign plant, which grows easily, and very ornamental; and the basket osier willows are easily raised near ditches and boundary division lines of swamps, known as the *Salix viminalis*. The common willow tree (*Salix alba*) grows very large. Two immense trees of this species, about fifty years old, I lately saw in a wet place in the rear of an old farm house, in the branches of which were permanent seats, and room ample to spread a table for some exercise of reading among the shady tops, or even to furnish a tea-drinking on pleasant occasions. These twin trees were planted by an humble domestic, whose memory is associated with these, her labors. A willow answers very well to shade the pigsty from the summer sun, or in drooping over the barnyard; but custom, in some sections, has preferred the butternut tree or oilnut tree, (*Juglans cinerea*,) which feeds luxuriantly upon the superabundant manure, and appropriates rather more than its share to its own ends.

The ash trees, (*Fraxinus acuminata* and *Fraxinus sambucifolia*,) called white and black ash, do very well, even when transplanted in quite ordinary soils; and their cleanly habits and handsome contour and light graceful leaves render them all desirable.

The horse-chestnut tree (*Æsculus hippocastanum*) is most easily raised from the nuts, which should be scarcely covered with earth and leaves immediately on ripening and falling from the trees, and transplanted when of convenient sizes. The tree of Heaven (*Ailanthus glandulosa*) grows very rapidly, and is much sought for to plant in cities, where it thrives exceedingly; but its unpleasant scented flowers and disagreeable smelling leaves, often render it an object of aversion, which objections do not lie against its relative, the Kentucky coffee tree, (*Gymnocladus Canadensis*,) equally beautiful in appearance and equally hardy.

Some one has made a quaint remark, that among other duties of life, every man should build a house and plant a tree. There is not always the need of the house-building, nor always the means; but means and ability and future need all cry out for the tree-planting; and let every one plant a tree and see that it grows, and future generations will silently bless the public spirit that dictated such a course. Especially should the farmers look to this, and begin at once on such good deeds of duty and of a true and refined charity, which shall in due time make our State a garden, and render it full of pleasant associations to those whose fortunes or business lead them away from their early homes, to which the heart yearns always to return, to spend declining years and die beneath their old ancestral trees.

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